

# **4<sup>th</sup> SEE Mosaics Conference**

## **IV. Savjetovanje SEE Mosaics**

**Presentation of Detached Mosaics  
on Movable Supports**

**Prezentacija demontiranih  
mozaika na pokretnim podlogama**

**3<sup>rd</sup>-6<sup>th</sup> October 2017**  
**3. - 6. listopada 2017.**

**Pula, Croatia**  
**Pula, Hrvatska**

# Introduction / Predgovor

Korpus mozaičke baštine dugo nije bio u fokusu znanstvenog i stručnog interesa povjesničara umjetnosti i arheologa. Pomanjkanje zanimanja naslijeđeno je od antičkih pisaca, koji također nisu poklanjali previše pozornosti mozaicima, tretirajući ih u svojim djelima uglavnom kao zanat, a ne kao umjetnost. Jedan od izuzetaka je brod Hijerona Sirakuškog, ukrašen mozaičkim scenama iz Ilijade (Athenaeus, *Deipnosophistae*, 5.206-207). Među rijetkim sačuvanim spomenima na mozaičare izdvaja se Plinijev (Gaius Plinius Secundus, *Naturalis Historia*, 36.184) zapis o Sosu Pergamskom, kojeg opisuje kao *celeberrimus fuit in hoc genere*.

*Pavimentum sectile* (Marcus Vitruvius Pollio, *De Architectura*, 7.1.3,4), *lithostrotum* (Gaius Plinius Secundus, *Naturalis Historia*, 1.c), *vermiculatum* (Gaius Plinius Secundus, *Naturalis Historia*, 35.2), *pictum de musivo* (Aelius Spartianus, *Pescennius Niger*, 6) ili *musivo picta* (Augustinus Hipponensis, *De Civitate Dei*, 16.8) neki su od pojmova koji se odnose na mozaike, a nalazimo ih u djelima antičkih pisaca. Bez obzira na nazivlje, naizgled bezvrijedne, šarene, kamene kockice, umijećem poslagane u dekorativne cjeline mozaika, postaju velika vrijednost.

U skladu sa svjetskim tendencijama revaloriziranja i očuvanja mozaičke baštine, osmišljen je i projekt *Southeast Europe Mosaics (SEE Mosaics)*, koji je 2011. pokrenuo Centralni institut za konzervaciju u Beogradu. Sa zajedničkim ciljem poticanja i unapređivanja organizirane zaštite i promidžbe mozaičke baštine, na projektu surađuju stručnjaci iz zemalja s prostora jugoistočne Europe (Albanija, Bosna i Hercegovina, Bugarska, Crna Gora, Hrvatska, Makedonija, Slovenija i Srbija).

Tijekom prve faze realizacije projekta utvrđeno je postojeće stanje nalazišta s antičkim mozaicima. Prikupljeni podaci objavljeni su u bazi podataka na mrežnoj stranici projekta [www.seemosaic.org](http://www.seemosaic.org). U drugoj fazi projekta naglasak je na razvijanju mreže stručnjaka te prijenosu i razmjeni iskustava, vještina i kompetencija o očuvanju mozaika. Upravo radi razmjene navedenih vrijednosti, do sada su bila organizirana tri savjetovanja *SEE Mosaics* u Ohridu.

Tema ovoga, četvrtog savjetovanja *SEE Mosaics* - prezentacija demontiranih mozaika na pokretnim podlogama - logičan je nastavak prethodnih triju. Naime, među zaključcima prethodnih savjetovanja je nemogućnost primjerene pohrane demontiranih mozaika istaknuta kao jedan od najvećih problema. Stoga je nužno razmotriti mogućnosti i odgovarajuće metode njihova konzerviranja i restauriranja, kao i najbolje načine prezentiranja. Predavanjima, temeljenim na praktičnom radu, bit će predstavljena prijašnja i sadašnja iskustva, s naglaskom na primijenjenim tehnikama i metodama.

Cilj ovoga savjetovanja *SEE Mosaics*, već trećega koje sufinancira Central European Initiative (CEI), jest nastavak razmjene iskustava, jačanje umrežavanja stručnjaka, razvoj novih tehnika i metoda konzerviranja, restauriranja i prezentiranja mozaika, kao i definiranje budućih aktivnosti i ciljeva projekta, a u svrhu očuvanja tih krhkih cjelina za buduće naraštaje.

dr. sc. Tajana Pleše

# Lectures / Predavanja

## CURRENT CHALLENGES OF DETACHED MOSAICS ON MOVABLE SUPPORTS / SUVREMENI IZAZOVI U RADU S DEMONTIRANIM MOZAICIMA NA POKRETNIM PODLOGAMA

- Alessandro Lugari: A method for setting up a mosaic collection in the Archaeological National Museum of Palazzo Massimo in Rome / Metoda za postavljanje zbirke mozaika u Nacionalnom arheološkom muzeju u Palači Massimo u Rimu **6**
- Lucija Đurašković, MA, Jovo Đurović, Dušan Medin: Antique, late antique and early Christian mosaics in the area of the municipality of Budva / Antički, kasnoantički i ranokršćanski mozaici na području Općine Budva **8**
- Astrid Maréchaux: Two contemporary mosaics executed on asbestos... How can one remove and restore works of art on a dangerous support? / Dva suvremena mozaika na azbestnoj podlozi... Kako ukloniti i restaurirati umjetnička djela na opasnim podlogama? **10**
- Brigitta Maria Kürtösi, DLA: Various conditions and conservation treatments, further plans in connection with detached mosaics of *Aquincum*, focusing on fragments depicting the punishment of Dirke / Konzervatorsko-restauratorski zahtevi u različitim uvjetima i daljnji planovi upravljanja mozaikom s prikazom kažnjavanja Dirke iz *Aquincuma* **12**
- Tonči Borovac, PhD: Mosaics from the archaeological site of 'Podno Miri', in Baška – Juran Dvor: Problems of an open-air archaeological site / Mozaici s arheološkog nalazišta „Podno Miri“ Baška - Jurandvor: Problemi arheološkog nalazišta na otvorenom **14**
- Leslie Fiedman, MSc: *In situ* versus lifting: An analysis of the advantages and disadvantages of two approaches to the conservation of archaeological mosaics / Podići ili ostaviti in situ: analiza prednosti i nedostataka dvaju pristupa konzerviranju-restauriranju mozaika s arheoloških nalazišta **16**
- Mishko Tutkovski: Conservation-restoration of floor mosaics from the *narthex* of the Episcopal Basilica in Stobi / Konzerviranje-restauriranje podnih mozaika iz nartekse episkopalne bazilike u Stobiju **18**
- Jelka Kuret, MA, Petra Benedik: Roman pavements displayed on lightweight supports with the use of polyurethane foam / Rimske podnice prezentirane na laganim podlogama uz upotrebu poliuretanske pjene **20**
- Krešimir Bosnić, Branko Matulić, PhD, Nikola Radošević: An overview of conservatory mosaic protection models in ancient Salona – outdated solutions as a contemporary problem / Pregled konzervatorskih modela zaštite mozaika antičke Salone - zastarjela rješenja kao problemi današnjice **22**

## PAST AND PRESENT SOLUTIONS FOR DETACHED MOSAICS / DEMONTIRANI MOZAICI U PROŠLOSTI I SADAŠNJOSTI

- Peter Berzobohaty, MA: Analytical view of detached mosaics / Analiza podignutih mozaika **24**
- Antonija Gluhan, MA: Mosaics with Portland cement supports: Selected examples from Split / Mozaici s podlogama rađenim portland-cementom (odabrani primjeri u Splitu) **26**
- Nikola Upevche: Examples and problems within presentation of mosaic fragments on removable media supports / Primjeri i problemi prezentacije dijelova mozaika na podlogama od reverzibilnih materijala **28**
- Đeni Gobić-Bravar: Sites in Istria with ancient mosaics: an overview / Nalazišta u Istri s antičkim mozaicima, pregled **30**
- Toni Šaina, Željko Ujčić: Fragments of the floor mosaic from the Basilica of St Mary Formosa in Pula – an example of various approaches to historical and contemporary presentation / Ulomci podnog mozaika iz bazilike sv. Marije Formoze u Puli – primjer različitih pristupa prezentaciji u prošlosti i danas **32**
- Blaž Šeme, PhD: A historical overview of movable supports for detached mosaics in Slovenia / Povijesni pregled pokretnih podloga za demontirane mozaike u Sloveniji **34**
- Dobrića Vlahović: Approaches to the protection and preservation of the cultural and historical values of mosaics in Montenegro / Pristupi i zaštiti i očuvanju kulturno-povijesnih vrijednosti mozaika u Crnoj Gori **36**
- Prof. Adnan Busuladžić, PhD: Condition and vulnerability of Roman mosaics in Bosnia and Herzegovina / Stanje i ugroženost rimskih mozaika na tlu Bosne i Hercegovine **38**

- Marta Novello, PhD : Aquileia Mosaics / Mozaici iz Akvileje **40**
- Reneta Karamanova-Zlatkova: Problems and Challenges in Conserving the Mosaic Heritage of Augusta Traiana (Stara Zagora) / Problemi i izazovi zaštite mozaičke baštine iz Auguste Traiane (Stara Zagora) **42**

## CONSERVATION-RESTORATION TECHNIQUES FOR MOSAICS / TEHNIKE KONZERVATORSKO-RESTAURATORSKIH ZAHVATA NA MOZAIČIMA

- Stefania Chlouveraki, PhD, Nikolaos Lympelopoulos, Andreas Gkizis, Eleftherios Charalambous, PhD: Issues in the preservation of the original mortar in detached mosaics: past experiences and future research / Problemi očuvanja izvorne žbuke na podignutim mozaicima: prijašnja iskustva i buduća istraživanja **44**
- Marijana Protić, Nemanja Smičiklas: Conservation-restoration of a mosaic with a Christ monogram from Mediana / Konzerviranje-restauriranje mozaika s Kristovim monogramom iz Medijane **46**
- Nikola Radošević, Branko Matulić, PhD, Krešimir Bosnić: Fragments of floor mosaics on portable substrates from the archaeological site of Gardun, near Trilj: Problems, presentation, context / Ulomci podnog mozaika na prenosivim podlogama s arheološkoga nalazišta Gardun pokraj Trilja; problematika, prezentacija, kontekst **48**
- Maja Franković, MA, Dunja Davidović Gnjatović, Dušan Maksimović: Mosaics in museums – approaches to designing movable supports for detached mosaics / Mozaici u muzejima – pristupi kreiranju pokretnih podloga za dislocirane mozaike **50**

## Posters / Posteri

- Dunja Davidović Gnjatović, Maja Franković, MA, Dušan Maksimović: Museum presentation of detached mosaics – treatment of *lacunae* / Prezentacija dislociranih mozaika u muzejima – tretman lakuna **52**
- Milena Jovanović, Dunja Davidović Gnjatović, Maja Franković, MA: Conservation of mosaic fragments from the City Museum of Belgrade / Konzerviranje fragmenata mozaika iz Muzeja grada Beograda **54**
- Dušan Maksimović, Maja Franković, MA, Dunja Davidović Gnjatović: Conservation-restoration of Roman mosaics from *villa urbana*, Budva – International project / Konzerviranje-restauriranje rimskog mozaika iz urbane vile (*villa urbana*) u Budvi (projekt međunarodne suradnje) **56**
- Marijana Protić, Nemanja Smičiklas: Conservation-restoration of modern ceramic mosaics from an elementary school in Obrenovac / Konzerviranje-restauriranje suvremenog keramičkog mozaika iz osnovne škole u Obrenovcu **58**
- Martina Lesar Kikelj, MA, Nataša Škrjanec: Proper selection of methodology works on two different areas of the archaeological park of St. Simon's Bay (*Simonov Zaliv*) / Odabir odgovarajuće metodologije rada na dva područja arheološkog parka Simonov zaljev (*Simonov zaliv*) **60**

# A method for setting up a mosaic collection in the Archaeological National Museum of Palazzo Massimo in Rome / Metoda za postavljanje zbirke mozaika u Nacionalnom arheološkom muzeju u Palači Massimo u Rimu

Alessandro Lugari, senior conservator, Colosseum Archaeological Park, [alessandro.lugari@beniculturali.it](mailto:alessandro.lugari@beniculturali.it) / Alessandro Lugari, viši konzervator, Arheološki park Kolosej, [alessandro.lugari@beniculturali.it](mailto:alessandro.lugari@beniculturali.it)

The Palazzo Massimo's mosaics collection at the Baths in Rome is one of the most important and complete in the ancient Roman world and is the result of a selection of the works previously exhibited and preserved in the Roman National Museum at Terme di Diocleziano. The long work of dismantling the old museum that began in the mid-eighties was continued with the "derestaurò" of the mosaic works, all mounted on reinforced concrete panels. Once the old media had been removed, the mosaics were restored and reassembled on lightweight panels and exhibited in the new museum, which was inaugurated in July 1998. Over the last three years, starting with the tenth anniversary of its opening, major improvements have been made to the whole museum.

As far as mosaics are concerned, an attempt has been made to enhance the contexts by trying to develop this concept by which the museum of Palazzo Massimo was created. A new section has been set up where some of the environments with frescoed walls and floor mosaics have been completely recreated in the so-called 'old rooms' (a *domus* found on the square in front of Termini Station during excavations for the metro in 1946-50). In the new layout of Villa della Farnesina, some floor lacquers have been inserted in the frescoed environments previously exposed. In addition, the mosaics of the museum's second-floor gallery have been relocated in chronological order to give a general picture of the evolution of Roman mosaic art from the second century B.C. to the end of the Empire. Mosaic anchor systems have been designed and built in such a way as to be easily removable and thus allow for work loans at special events and, where necessary, appropriate exhibit changes.

Zbirka mozaika u muzeju Palače Massimo u Rimu jedna je od najvažnijih i najpotpunijih zbirki antičkih rimskih mozaika u svijetu. Radi se o izboru djela koja su prethodno bila izložena i pohranjena u Nacionalnom rimskom muzeju u Dioklecijanovim termama. Višegodišnji rad na renovaciji starog muzeja, koji je počeo sredinom osamdesetih godina 20. stoljeća, nastavio se uklanjanjem posljedica prethodnog konzervatorsko-restauratorskog zahvata na mozaicima koji su bili postavljeni na armiranobetonske ploče. Nakon uklanjanja starog medija, mozaici su restaurirani i postavljeni na lagane ploče te izloženi u novom muzeju koji je otvoren u srpnju 1998. godine. U tri godine nakon desete obljetnice otvaranja, muzejski se postav znatno poboljšao. Kad je riječ o mozaicima, pokušao se obogatiti njihov prikaz u kontekstu razvoja postojećega muzejskog koncepta Palače Massimo. Postavljen je novi dio u kojemu su neke prostorije s oslikanim zidovima i podnim mozaicima potpuno rekonstruirane, to su tzv. stare sobe (*domus* pronađen na trgu ispred stanice Termini tijekom iskopavanja za podzemnu željeznicu od 1946. do 1950. godine). U novom rasporedu Ville della Farnesina neke podne plohe (mozaici) aplicirane su u nekadašnjem izvornom ambijentu, okružene oslikanim zidovima. Osim toga, mozaici iz muzejske galerije na drugom katu posloženi su kronološki, da bi se prikazao razvoj rimske umjetnosti mozaika od 2. stoljeća pr. Kr. do pada Rimskog Carstva. Nosivi sustavi za mozaik osmišljeni su i izrađeni tako da budu lako prenosivi, čime bi se omogućile posudbe u posebnim prigodama i, ako je nužno, odgovarajuće izmjene u izložbenom postavu.



Picture 1. Roman National Museum, Palazzo Massimo, Rome. New setup of mosaics from 'antiche stanze'. (Photo: Alessandro Lugari)

Slika 1. Novi postav mozaika iz „antičke sobe“; Nacionalni rimski muzej, Palača Massimo, Rim (foto: Alessandro Lugari)

# Antique, late antique and early Christian mosaics in the area of the municipality of Budva / Antički, kasnoantički i ranokršćanski mozaici na području Općine Budva

Lucija Đurašković, MA, director of the Public Institute of Museums and Galleries of Budva, lucija.djuraskovic@gmail.com, Jovo Đurović, conservator-adviser, Public Institute of Museums and Galleries of Budva, johan.mne@gmail.com, Dušan Medin, curator, Public Institute of Museums and Galleries of Budva, dusan.medin@gmail.com / mr. Lucija Đurašković, ravnateljica JU Muzeji i galerije Budve, lucija.djuraskovic@gmail.com, Jovo Đurović, konzervator savjetnik, JU Muzeji i galerije Budve, johan.mne@gmail.com, Dušan Medin, kustos, JU Muzeji i galerije Budve, dusan.medin@gmail.com

In fine art, particularly antique, early Christian and Byzantine, the mosaic, as a technique for decorating walls and floors, occupies a particularly significant place. The territory of Budva is rich in mosaics from various periods of history. The oldest mosaic, from the antique period, represents an example of mosaic floor from the 2<sup>nd</sup> century, and it is one of the oldest exemplars of mosaic depiction ever found in the Balkans. The artistic value of the mosaic, as well as its stylistic and technical characteristics, testify that it is a representative work of ancient Roman art with symbolic representations of a dragon, snakes and sea creatures, which indicates a possibility that it is a unique example of artistic incarnation of the well-known legend regarding the origin of the town of Budva. It is assumed that the late antique mosaic discovered in the territory of the nearby town of Petrovac na Moru originated in the middle of the 4<sup>th</sup> century and is an example of the symbiosis of the late antique and early Christian art traditions, and therefore it indicates the very beginning of early Christian art on the coast of Montenegro, that is, on the southern part of the east coast of the Adriatic sea. This magnificent mosaic decorated the floor of a rustic villa (*villa rustica*) that belonged to a powerful landowner. The villa was located in the vicinity of the Epidaurus-Scodra road, which connected Epidaurus with the capital of the Roman province of Prevalis, which had just gained its independence. The third mosaic originates from the late antique or early Christian period (late 5<sup>th</sup> century and early 6<sup>th</sup>). The mosaic covered the floor of the central nave of the early Christian basilica, the oldest and, according to its dimensions, largest Christian sacred object within the walls of the Old Town of Budva. In the remains of the mosaic, besides decorative geometrical fields with symbolic signs and ideograms, two-dimensional representations of birds and floral elements can be identified. The main pur-

U likovnoj umjetnosti, naročito antičkoj, ranokršćanskoj i bizantskoj, mozaik je, kao tehnika ukrašavanja zidova i podova, bio vrlo važan dio. Područje Budve bogato je mozaicima iz različitih povijesnih razdoblja. Iz najstarijega antičkog doba potječe mozaički pod iz 2. stoljeća, koji pripada najstarijim primjercima mozaičnog slikarstva pronađenih na prostoru Balkana. Umjetnička vrijednost mozaika te njegove stilske i tehničke karakteristike svjedoče o tome da je riječ o reprezentativnom djelu antičke rimske umjetnosti sa simbolima zmaja, zmija i bića iz svijeta morske faune koji upućuju na eventualni jedinstven primjer likovnog oživotvorenja poznate legende o postanku Budve. Za kasnoantički mozaik koji je otkriven na području obližnjeg Petrovca na Moru pretpostavlja se da je nastao sredinom 4. stoljeća, a primjer je simbioze kasnoantičke i ranokršćanske umjetničke tradicije te upućuje i na same početke ranokršćanske umjetnosti na crnogorskom primorju, odnosno južnom dijelu istočne obale Jadrana. Navedeni mozaik ukrašavao je pod rustične vile (*villa rustica*) nekog moćnijeg veleposjednika koja se nalazila u neposrednoj blizini puta Epidaurus - Scodra, koji je povezivao Epidaurus s glavnim gradom tek osamostaljene rimske provincije Prevalis. Iz kasne antike ili ranog kršćanstva (kraj 5. ili početak 6. stoljeća) potječe treći mozaik koji je pokrивao pod središnjega broda ranokršćanske bazilike, najstarije, a prema dimenzijama i najprostranije sakralne kršćanske građevine unutar Staroga grada Budve. Na ostacima mozaika mogu se prepoznati, osim dekorativnih geometrijskih polja sa simboličkim znacima i ideogramima, dvodimenzionalno predstavljeni prikazi ptica i floralnih elemenata. Glavni cilj ovoga rada je

pose of this work is to provide historical and artistic analysis of the three mosaics and a short overview on the context of their finding – during archeological excavations or by chance. Moreover, at the end of this work some possible solutions for their proper presentation will be suggested, due to the fact that none of the three mosaics yet has adequate presentation.

povijesna i umjetnička analiza navedenih mozaika te sažet prikaz njihova konteksta nalaska, bilo tijekom arheoloških iskopavanja, bilo kao slučajnih nalaza. Na kraju rada predložena su rješenja za prezentaciju mozaika, s obzirom na to da do sada ni jedan od njih nije adekvatno prezentiran.



Picture 1. Current condition and new presentation of the conserved-restored ancient Roman mosaic in the Budva City Museum. (Photo: Jovo Đurović)

Slika 1. Sadašnje stanje i nova prezentacija konzerviranog-restauriranog antičkog rimskog mozaika u Muzeju grada Budve (foto: Jovo Đurović)

## Two contemporary mosaics executed on asbestos... How can one remove and restore works of art on a dangerous support? / Dva suvremena mozaika na azbestnoj podlozi... Kako ukloniti i restaurirati umjetnička djela na opasnim podlogama?

Astrid Maréchaux, freelance conservator of mosaics and archaeological objects, **Restauration Mosaiques**, [astridmarechaux@gmail.com](mailto:astridmarechaux@gmail.com) / Astrid Maréchaux, samostalni konzervator-restaurator mozaika i arheoloških predmeta, **Restauration Mosaiques**, [astridmarechaux@gmail.com](mailto:astridmarechaux@gmail.com)

In French public construction, 1% of the general budget is allocated to art. With this objective, in 1967 a high school in Creutzwald (East of France) received three works of art – two modern mosaics and one painting – from a local artist, Camille Hilaire. In time, the classrooms ceased to be used, and the mosaics suffered from dirt, losses, cracks... In 2017, the building is planned to be destroyed. Therefore, the demand was to remove the two mosaics from the old walls, to transfer them to new buildings of the high school, and to “bring them back to light”. However, the previous study of these masterpieces has revealed that the support for the mosaics was made entirely with asbestos, a big problem for their removal. It is impossible and dangerous to scratch, move, touch or break the support. Moreover, the weight of the *tesserae* is too high not only for this kind of support, but also for the walls. The panels of the mosaics are completely deformed, and the supporting walls are collapsing. To find solutions, a team of conservators, asbestos specialists and metalworking craftsman has been created. How can mosaics, 4m long, be removed without touching or breaking the asbestos support? What kind of new hanging system can be created to exhibit the mosaic panels in a school? And how can they be restored and protected?

U Francuskoj se iz državnoga proračuna izdvaja 1% za umjetnost. Zahvaljujući tome, 1967. godine uprava srednje škole u regiji Creutzwald (istok Francuske) naručila je tri umjetnička djela od lokalne umjetnice Camille Hilaire, dva suvremena mozaika i jednu sliku. Međutim, školska se zgrada u međuvremenu prestala koristiti, pa su mozaici izloženi prašini i oštećenjima, naročito napuknućima i gubitkom tesera. Budući da je zgrada planirana za rušenje u 2017. godini, trebalo je dva mozaika skinuti sa starih zidova i prenijeti u nove zgrade srednje škole da bi „ponovno zasjali starim sjajem“. No prethodne studije tih remek-djela pokazale su da je podloga mozaika potpuno izrađena od azbesta, što je velik problem u njihovu uklanjanju. Podloga se ne smije grepsti, micati, dirati ili lomiti. Osim toga, prekomjerna težina tesera nije primjerena samo za takvu vrstu podloge, nego i za same zidove. Paneli mozaika potpuno su deformirani, a potporni zidovi se urušavaju. Angažirana je skupina konzervatora-restauratora, stručnjaka za azbest i obrtnika-metalaca kako bi se pronašlo rješenje. Kako ukloniti mozaike dugačke 4 m bez dodirivanja ili oštećivanja azbestne podloge? Kakav sustav visećih panela odabrati za izlaganje mozaika u školi? I naposljetku, kako se mozaici mogu restaurirati i zaštititi?



Picture1. The green mosaic before protection and removal of its old wall. (Photo: Astrid Maréchaux)

Slika 1. Zeleni mozaik prije zaštite i uklanjanja starog zida (foto: Astrid Maréchaux)



Picture 2. The green mosaic after restoration, presented in the new school building. (Photo: Astrid Maréchaux)

Slika 2. Zeleni mozaik nakon restauriranja, izložen u novoj školskoj zgradi (foto: Astrid Maréchaux)

## Various conditions and conservation treatments, further plans in connection with detached mosaics of *Aquincum*, focusing on fragments depicting the punishment of Dirke / Konzervatorsko-restauratorski zahvati u različitim uvjetima i daljnji planovi upravljanja mozaikom s prikazom kažnjavanja Dirke iz *Aquincuma*

Brigitta Maria Kürtösi, DLA, painting-conservator, lecturer, Hungarian University of Fine Arts, [kurtosi.brigitta.maria@gmail.com](mailto:kurtosi.brigitta.maria@gmail.com) / dr. art. Brigitta Maria Kürtösi, konzervator-restaurator za slikarstvo, predavač, Mađarsko sveučilište likovnih umjetnosti, [kurtosi.brigitta.maria@gmail.com](mailto:kurtosi.brigitta.maria@gmail.com)

The contribution deals with the various problems of the detached floor-mosaic fragments excavated in the first quarter of the 1900s, preserved in museum storage. It focuses mainly on the situation of the mosaic with the rarely represented scene of the punishment of Dirke, unearthed in the Roman civil town, which is the present site of the Museum of *Aquincum*. The example for comparing the situation is a larger panel of a threshold mosaic from the Governor's Palace. It was lifted with its strongly bound preparatory mortar layers; thus its weight is significant. The Dirke mosaic sections have the original mortars only in traces; essentially the fragmented *opus tessellatum* has remained, with sizeable missing parts. The plan is to display the mosaic at its original location by fixing the fragments on mobile panels which are separable. The mosaic (36 m<sup>2</sup>) is very fragmented, including the figural pseudo-emblema. The conservation problems require not only the stabilizing of the diverse conditions of the sections, but also the solving of the traces of former treatments. The movable supports can vary depending on the dimensions of the fragments. The goal of future treatments – building on previous experience – is to find adequate materials (lightweight aggregates, composite panels of cellular structured polycarbonate multiwall sheets, plastic grids), and methods to grant compatibility and reversibility. It is a further goal to realize a same-size replica, a completed version of the pseudo-emblema, which can represent the mythological scene but strictly avoid the completion of the original figurative fragments. The completions can also vary within an original fragment, and regarding the missing parts. The aim of this situation is to keep the originality, but to give an ethical solution which serves better understanding.

Izlaganje se bavi različitim problemima u radu s fragmentima podnih mozaika koji su iskopani, podignuti i pohranjeni u depo muzeja u prvom kvartalu 20. stoljeća. Prezentacija je fokusirana na stanje mozaika koji sadrži rijetko prikazivanu scenu kažnjavanja Dirke, a otkriveni su tijekom iskopavanja rimskog grada koji je trenutačna lokacija Muzeja *Aquincum*. Primjer za usporedbu stanja je veći panel podnog mozaika iz Guvernerove palače. Mozaik je podignut s izvornom žbukanom podlogom, što ga čini vrlo teškim. Dijelovi mozaika s prikazom kažnjavanja Dirke sadrže izvornu žbuku samo u tragovima, u pravilu je ostao očuvan *opus tessellatum* s velikim prazninama. Cilj je izložiti mozaik na izvornoj lokaciji pričvršćivanjem fragmenata na pomične podloge koje se mogu odvojiti. Mozaik je (36 m<sup>2</sup>) sačuvan samo u fragmentima, uključujući i pseudoemblemu. U konzervatorsko-restauratorskim zahvatima bitno je stabilizirati različita stanja pojedinih dijelova mozaika, ali i ukloniti tragove prijašnjih zahvata. Pomične podloge razlikuju se ovisno o veličini fragmenata. Cilj je budućih zahvata, na temelju prijašnjih iskustava, pronaći prikladne materijale (lagane agregate, kompozitne panele izrađene od strukturiranih polikarbonatnih višeslojnih ploča, plastične rešetke) i metode koje osiguravaju kompatibilnost i reverzibilnost. Nadalje, planira se i izrada replike cijele pseudoemblemu u prirodnoj veličini, s prikazom mitološke scene, izbjegavajući rekonstrukciju izvornih dijelova mozaika s figuralnim prikazima. Stupanj rekonstrukcije pojedinih izvornih fragmenata može se razlikovati ovisno o dijelovima koji nedostaju. Pritom treba zadržati izvornost i razraditi etično rješenje koje će olakšati razumijevanje.



Picture 1. Drawing of the excavated parts of the Dirke-mosaic emblema (*Aquincum*) from 1943. (Photo: Lajos Nagy: Dirke bűnhődése az aquincumi mozaikon. In: Budapest Régiségei 13, 1943, p. 89, Fig. 10)

Slika 1. Crtež pronađenih fragmenata embleme mozaika s prikazom kažnjavanja Dirke (*Aquincum*) iz 1943. (foto: Lajos Nagy: Dirke bűnhődése az aquincumi mozaikon. U: Budapest Régiségei 13, 1943., str. 89, sl. 10)

# Mosaics from the archaeological site of ‘Podno Miri’, in Baška - Jurandvor: Problems of an open-air archaeological site / Mozaici s arheološkog nalazišta „Podno Miri“ Baška - Jurandvor: Problemi arheološkog nalazišta na otvorenom

Tonči Borovac, PhD, consultant conservator-restorer Section for Wall Paintings, Mosaics and Stucco, Split Department for Conservation, Croatian Conservation Institute, [tborovac@h-r-z.hr](mailto:tborovac@h-r-z.hr) / dr. sc. Tonči Borovac, konzervator-restaurator savjetnik, Odsjek za zidno slikarstvo, mozaik i štuko, Restauratorski odjel Split, Hrvatski restauratorski zavod, [tborovac@h-r-z.hr](mailto:tborovac@h-r-z.hr)

At the archaeological site of “Podno Miri”, in Baška, many factors exist which prevent application of acceptable solutions in accordance with the ultimate goal – returning original parts of mosaics previously lifted with the securing of a maintenance system and the presentation of the whole archaeological site. Every archaeological site, especially one with mosaic pavements, represents a real source of data with historical matrices which delineate the contour of the time in which they originated and lasted. When it is not possible to secure minimum conditions for the revitalization and maintenance of an archaeological site, there should be no doubt about choosing a solution with protective canopies and other forms of protective covering. Protective canopies do not have to be aggressive interventions in the landscape, but with their own design could be refined and implemented, especially when such projects are realized by experts (architects) in accordance with conservation terms and conditions. Compromise, in the sense of restriction of visual perception of the cultural landscape, which is set before the final goal – to get the best protection and possibility optimal maintenance of an archaeological site – is multiply cost-effective and represents perhaps the best solution in the process of the conservation-restoration and maintenance system. There are many arguments in favour of these solutions, and they are, among others:

- long-term quality protection (especially from harmful external influences like insolation, precipitation and other forms of meteorological phenomenon)
- ideal conditions for all materials represented
- considerably lower price

Na arheološkom nalazištu “Podno Miri” u Baški prisutni su mnogi čimbenici koji priječe primjenu prihvatljivih rješenja u ostvarenju zadanoga cilja – ponovno vraćanje podignutih izvornih dijelova mozaika s osiguranjem sustava održavanja i prezentacijom cijelog arheološkog nalazišta. Svako arheološko nalazište, poglavito ono na kojemu su mozaici, živo je vrelo podataka s povijesnim matricama koje ocrtavaju obrise vremena u kojem su nastali i trajali. Kad se na nekom arheološkom nalazištu ne mogu osigurati minimalni uvjeti za revitalizaciju i održavanje, ne bi trebalo dvojiti oko postavljanja prilagođenih nadstrešnica i ostalih oblika natkrivanja zaštićenog mjesta koji bi takve uvjete osigurali. Nadstrešnice ne moraju biti agresivne intervencije u prostoru, nego ga dizajnerskim rješenjima mogu oplemeniti i dopuniti, posebice kad takve projekte osmišljavaju stručnjaci (arhitekti) u skladu s konzervatorskim uvjetima i naputcima. Kompromis, tj. ograničavanje vizualnog doživljaja kulturnog pejzaža, koji se postavlja pred konačnim ciljem (a to je postizanje kvalitetne zaštite i optimalno održavanje nekog arheološkog nalazišta) višestruko je isplativ i možda je najbolje rješenje u procesu zaštite, konzerviranja-restauriranja te održavanja. Mnogi argumenti govore u prilog takvim rješenjima, a najvažniji su:

- dugoročna kvalitetna zaštita (poglavito od štetnih vanjskih utjecaja, kao što su insolacija, oborine i ostali oblici meteoroloških pojavnosti)
- idealni uvjeti za sve zastupljene materijale
- znatno niže cijene i
- kraće vrijeme izvođenja konzervatorsko-restauratorskih radova i održavanja.

- shorter time for executing conservation-restoration and other maintenance work.

When an archaeological site in the open is arranged and maintained, then it is much easier to incorporate it in the cultural landscape or in projects which are important for economic development based on cultural heritage.

Uređena i održavana arheološka nalazišta na otvorenom mnogo je lakše integrirati u „kulturni krajolik“ ili u projekte koji su važni za gospodarski razvoj utemeljen na kulturnoj baštini.



Picture 1. Mosaic after the removal of protective layers of soil and plastic foil. (Photo: Tonči Borovac)

Slika 1. Izgled mozaika nakon uklanjanja zaštitnih slojeva zemlje i plastičnih folija (foto: Tonči Borovac)

# ***In situ* versus lifting: An analysis of the advantages and disadvantages of two approaches to the conservation of archaeological mosaics /** **Podići ili ostaviti *in situ*: analiza prednosti i nedostataka dvaju pristupa konzerviranju-restauriranju mozaika s arheoloških nalazišta**

Leslie Friedman, MSc, architectural conservator, the Getty Conservation Institute, [lfriedman@getty.edu](mailto:lfriedman@getty.edu) / mr. sc. Leslie Friedman, konzervator-restaurator arhitekture, Gettyjev institut za konzervaciju, [lfriedman@getty.edu](mailto:lfriedman@getty.edu)

Conservation techniques, as well as conservation ethics, change through time. In recent years, conservation theory has moved towards minimal intervention and tenets such as repeatability. This movement applies to the field of mosaics conservation as well, particularly archaeological mosaics. Increasingly, conservation professionals are prioritizing the treatment of mosaics *in situ* where possible. Despite this shift, mosaics are still being lifted. Lifting mosaics typically results in three different outcomes: held in storage, presented in a museum or other type of exhibition, or relaid on site. One of the principal arguments against lifting mosaics is the impact removing an archaeological mosaic from its location has on its legibility, and the understanding of the mosaic as part of something larger – a room, a building, a site. Although the last approach – replacing the lifted mosaic on site on a new bedding – does restore the mosaic to its context, it still results in the permanent loss of material – and, with it, crucial archaeological information. And, as is well-known, decades of inappropriate lifting and relaying techniques have resulted in the complete or near loss of untold numbers of mosaics. The lifting of mosaics is unavoidable at times. Due to, for example, the threat of looting, intentional or unintentional destruction, development, or salvage archaeological excavations, lifting may be the only way to save a mosaic. Often, however, lifting is done because the condition of the mosaic is considered too dire to treat in place. Using examples from Tunisia, this paper will discuss the advantages and disadvantages of treating and presenting mosaics *in situ* and those of lifting mosaics for storage or display, and will argue that, in most cases, mosaics should be left *in situ* despite the level of condition.

Konzervatorsko-restauratorske tehnike i etika s vremenom se mijenjaju. Posljednjih nekoliko godina teorija konzerviranja-restauriranja zagovara pristup s minimalnim intervencijama i načelo ponovljivosti. Isti pristup primjenjuje se i na području konzerviranja-restauriranja mozaika, posebice mozaika s arheoloških nalazišta. Konzervatori-restauratori sve češće daju prednost zahvatima na mozaicima koji se, kad je to moguće, obavljaju *in situ*. Unatoč tomu, mozaici se još uvijek podižu. Podizanje mozaika obično ima tri ishoda: pohranjivanje u depou, izlaganje (muzejska ili neka druga vrsta izložbe) ili ponovno postavljanje na izvornu lokaciju. Jedan od glavnih argumenata protiv podizanja mozaika je činjenica da podizanje s izvorne lokacije utječe na njegovo razumijevanje i shvaćanje cjeline čiji je on dio – prostorije, građevine, nalazišta. Iako ponovno postavljanje mozaika na izvornu lokaciju i novu podlogu mozaik vraća u izvorni kontekst, taj postupak još uvijek rezultira gubitkom materijala i, samim tim, važnih arheoloških podataka. Isto tako, dobro je poznato da su desetljeća neprimjerenih zahvata podizanja i ponovnog postavljanja mozaika uzrokovala potpuni ili gotovo potpuni gubitak nbrojenog broja mozaika. Katkad je podizanje mozaika neizbježno. Primjerice, zbog opasnosti od pljačke, namjerne ili nenamjerne devastacije, izgradnje, ili zaštitnih arheoloških iskopavanja, podizanje može biti jedini način spašavanja mozaika. No često se mozaici podižu jer su u iznimno lošem stanju te se konzervatorsko-restauratorski zahvati ne mogu izvesti na mjestu pronalaska. Pozivajući se na primjere iz Tunisa, u ovom će se radu raspravljati o prednostima i nedostacima tretiranja i prezentacije mozaika *in situ*, kao i podizanja mozaika radi pohrane ili izlaganja, argumentirajući stav da, u većini slučajeva, bez obzira na stanje u kojem se nalaze, mozaici trebaju ostati *in situ*.



Picture 1. Lifted and relaid mosaic near total loss, from the Maison de Lucius Verus at the site of El Jem-Bir Zid, Tunisia, 2013. (Photo: Ermanno Carbonara)

Slika 1. Podignut i ponovno postavljen mozaik, gotovo potpuno uništen, Maison de Lucius Verus, arheološko nalazište El Jem-Nir Zid, Tunis, 2013. (foto: Ermanno Carbonara)

# Conservation-restoration of floor mosaics from the *narthex* of the Episcopal Basilica in Stobi / Konzerviranje-restauriranje podnih mozaika iz nartekса episkopalne bazilike u Stobiju

Mishko Tutkovski, archaeologist and mosaic conservator, National Institution Stobi, [mishko.tutko@gmail.com](mailto:mishko.tutko@gmail.com) / Mishko Tutkovski, arheolog i konzervator-restaurator mozaika, Državna ustanova Stobi, [mishko.tutko@gmail.com](mailto:mishko.tutko@gmail.com)

Mosaics in the *narthex* of the Episcopal Basilica were originally discovered during archaeological excavations in the 1930s and reopened in the 1970s. Preventive conservation treatments such as cleaning, edge repairing and filling of *lacunae* were carried out in both the 30s and the 70s, after which the mosaics were covered and then completely neglected. The mosaics were opened again in 2011, when we detected a lot of structural damage caused by the absence of maintenance during the previous four decades. Immediately after the opening, we started *in situ* conservation of the mosaics, but unfortunately this was an unsuccessful attempt. Unstoppable and rapid growth of vegetation, which had started right after the opening of the mosaics, was destroying all the mosaic layers, including all our interventions. Thus, we were forced to detach the mosaics and continue the project in other directions. This presentation discusses all the conservation-restoration treatments that were carried out on these mosaics from their detachment, through setting on a movable support and finally placing them back *in situ*, in the *narthex* of the Episcopal Basilica.

Mozaici u nartekсу episkopalne bazilike otkriveni su u arheološkim istraživanjima tridesetih godina 20. stoljeća. Nakon završetka istraživanja, mozaici su preventivno zaštićeni, prekriveni i zakopani. Ponovno su otkopani sedamdesetih godina, zbog preventivne zaštite, nakon čega su opet prekriveni i potpuno zanemareni. Mozaici su ponovno otvoreni 2011. godine, kad su utvrđena teža strukturna oštećenja zbog njihova neodržavanja prijašnjih desetljeća. Odmah nakon otvaranja započelo je konzerviranje mozaika *in situ*, no neuspješno. Nezaustavljiv i nagli rast biljaka uništavao je sve slojeve mozaika, kao i stručne intervencije. Zbog toga je bilo nužno podići mozaike i nastaviti projekt na drugačiji način. Ovo izlaganje je rasprava o svim konzervatorsko-restauratorskim zahvatima izvedenima na navedenim mozaicima nakon njihova podizanja, postavljanja na pokretne podloge i vraćanja na izvornu lokaciju u nartekс episkopalne bazilike.



Picture 1. Episcopical Basilica – *narthex*. Detail of the mosaic surface showing growth of vegetation in 2011. (Photo: Mishko Tutkovski)

Slika 1. Episkopalna bazilika – narteks. Detalj površine mozaika s prikazom rasta vegetacije 2011. godine (foto: Mishko Tutkovski)

Picture 2. Episcopical Basilica – *narthex*. Orthophoto of the mosaic after finalization of the conservation-restoration processes in 2016. (Photo: Mishko Tutkovski)

Slika 2. Episkopalna bazilika – narteks. Ortofotografija mozaika nakon završetka konzervatorsko-restauratorskih zahvata 2016. godine (foto: Mishko Tutkovski)



# Roman pavements displayed on lightweight supports with the use of polyurethane foam / Rimske podnice prezentirane na laganim podlogama uz upotrebu poliuretanske pjene

Jelka Kuret, MA, conservator-restorer, Restoration Centre, Institute for the Protection of the Cultural Heritage of Slovenia, [jelka.kuret@rescen.si](mailto:jelka.kuret@rescen.si), Petra Benedik, freelance landscape architect, Restoration Centre, Institute for the Protection of the Cultural Heritage of Slovenia, [petra.benedik@gmail.com](mailto:petra.benedik@gmail.com) / mr. art. Jelka Kuret, konzervator-restaurator, Restauratorski centar, Zavod za zaštitu kulturne baštine Slovenije, [jelka.kuret@rescen.si](mailto:jelka.kuret@rescen.si), Petra Benedik, samostalni krajobrazni arhitekt, Restauratorski centar, Zavod za zaštitu kulturne baštine Slovenije, [petra.benedik@gmail.com](mailto:petra.benedik@gmail.com)

During extensive archaeological research upon renovation of infrastructure along the *Slovenska cesta* road in Ljubljana, an independent dwelling (*Insula XIII*) was discovered. The rooms were paved with differing mortar pavements, constructed using the *opus signinum* technique. Since such heritage has so far been rarely preserved and displayed in Slovenia, it has been decided to musealise three of the discovered pavements. We began conservation-restoration procedures at the archaeological site. Two of the pavements that were too big to be transported and worked on had to be cut into smaller pieces. At the Restoration Centre we mechanically cleaned the reverse side of the pavements, thinned them out and consolidated them with a protective layer of mortar. Despite the fact that the pieces were thinned out as much as possible, the weight of the pavings was still considerably large. In order to display and store the pavings easily, we also had to consider the final size of the reassembled pieces. With this in mind, we had to use the lightest materials possible. We decided to use 30-mm-thick sandwich panel with aluminium honeycomb core, which is a very lightweight and sturdy support. For additional reinforcement we added an aluminium frame and aluminium profiles at the bottom. As an adhesive and filler we used low-expansion polyurethane foam, which is permanent if not exposed to UV light. Individual pieces of the two cut pavements were restored in a way that enables reassembly later on. Because of different aggregate size and uneven surface, the pieces varied in thickness. In order to obtain the same surface level, we had to create a lightweight base for each individual piece according to its thickness. Pieces of paving were then glued with polyurethane foam onto separate supports, which form a whole when put together. Next we filled the empty spaces between frame and pave-

Tijekom arheoloških istraživanja prilikom obnove Slovenske ceste u Ljubljani pronađena je samostojeća stambena jedinica (*Insula XIII*). Podovi prostorija su bili izvedeni različitim žbukanim podnicama izrađenim tehnikom *opus signinum*. S obzirom na to da je baština te vrste rijetka u Sloveniji, odlučeno je muzealizirati tri otkrivene podnice. Konzervatorsko-restauratorski zahvati započeti su na arheološkom nalazištu. Trebalo je dvije podnice, prevelike za obradu i prijevoz, izrezati na manje dijelove. U Restauratorskom centru mehanički je očišćena i stanjena stražnja strana podnica te je konsolidirana zaštitnim slojem žbuke. Unatoč tome što su dijelovi podnica stanjeni, još uvijek su bili teški. Kako bi se podnice lakše izložile i pohranile, trebalo je uzeti u obzir i konačnu veličinu složenih dijelova. Imajući to na umu, primijenjivani su najlakši materijali. Odlučeno je da se upotrijebe aerolam ploče s aluminijskom sačastom jezgrom debljine 30 mm koje pružaju iznimno laganu i čvrstu potporu. Za pojačanje su dodani aluminijski okvir i aluminijski profili na dnu. Kao ljepilo i punilo poslužila je poliuretanska pjena niske ekspanzije koja je trajna ako nije izložena UV zračenju. Pojedinačni dijelovi dviju izrezanih podnica konzervirani-restaurirani su tako da je moguće njihovo kasnije spajanje. Zbog različitih veličina agregata i neravne površine podnice, dijelovi se razlikuju u debljini. Kako bi podnice bile na istoj razini, trebalo je izraditi laganu bazu za svaki dio, uzimajući u obzir njegovu debljinu. Dijelovi podnice zatim su zalijepljeni poliuretanskom pjenom na odvojene podloge koje će, kad se spoje, činiti cjelinu. Prazni prostori između okvira i podnice ispunjeni su poliuretanskom pjenom te je iznad nje postavljena dekorativna žbuka kao zaštita od UV zračenja. Svi su postupci izvedeni prema načelima reverzibilnosti.

ment with polyurethane foam and designed a decorative plaster on top of it to protect it from UV light. All the procedures were executed on the principle of reversibility.



Picture 1. Empty spaces between frame and pavement filled with polyurethane foam.  
(Photo: Petra Benedik)

Slika 1. Prazni prostori između okvira i cementa ispunjeni poliuretanskom pjenom  
(foto: Petra Benedik)

# An overview of conservatory mosaic protection models in ancient Salona - outdated solutions as a contemporary problem / Pregled konzervatorskih modela zaštite mozaika antičke Salone - zastarjela rješenja kao problemi današnjice

Krešimir Bosnić, conservator-restorer, Arts Academy of the University of Split, kbosnic1@gmail.com, Branko Matulić, PhD, consultant conservator-restorer, University of Split, branko.matulic@unist.hr, Nikola Radošević, conservator-restorer, Arts Academy of the University of Split, radniko@gmail.com / Krešimir Bosnić, konzervator-restaurator, Umjetnička akademija Sveučilišta u Splitu, kbosnic1@gmail.com, dr. sc. Branko Matulić, konzervator-restaurator savjetnik, Sveučilište u Splitu, branko.matulic@unist.hr, Nikola Radošević, konzervator-restaurator, Umjetnička akademija Sveučilišta u Splitu, radniko@gmail.com

During the last 40 years, since the first thematic congress dedicated exclusively to mosaic protection was held in Rome, the profession of conservation-restoration has advanced significantly in that field. In spite of this, we have still not dealt with the legacy left behind by actions taken before that period, and so, at archaeological sites or in museum collections, we often confront difficulties that haunted the mosaic caretakers during the time of the profession's original organisation: mosaic ensembles detached from their original backing without a detailed plan of protection, safekeeping and presentation, today often forsaken and deteriorating. In a local context the problem can be approached by studying the mosaic heritage of Salona, the provincial centre of Roman Dalmatia. Numerous investigators in Salona during the last two hundred years have attempted to go about these mosaics in different ways. Alongside the practice of conservation and *in situ* backfilling of large mosaic ensembles, some of them were detached and placed on difficult-to-move reinforced-concrete bases which are, often within *sub divo* museum exhibits, rapidly deteriorating today. The aim of this paper is to offer a section view of the matter, one that provides information about conservation-restoration techniques in certain historical circumstances, and past and present solutions for detached mosaics, as well as contemporary challenges and presentation models for mosaics separated from their native surroundings. With the material capabilities of our time, and technological solutions that grow more varied and accessible by the day, the question is whether we can repair the damage previously inflicted. After exhibiting basic facts about the mosaics previously treated, the paper suggests some of the most modern solutions of presentation through virtual, and even augmented, reality, with which we are able to recreate the original

U proteklih 40 godina, otkad je u Rimu održan prvi tematski kongres posvećen isključivo zaštiti mozaika, konzervatorsko-restauratorska struka na tome je području znatno napredovala. Unatoč tome, još se uvijek susrećemo s nasljeđem postupaka provedenih prije tog razdoblja, pa veoma često na arheološkim lokalitetima ili u muzejskim zbirkama nailazimo na poteškoće koje su mučile skrbitelje o mozaicima i u vrijeme prvotne organizacije struke; mozaičke cjeline strapirane su bez detaljnog plana zaštite, čuvanja i prezentacije te su danas često prepuštene zaboravu i propadanju. Sagledavanju navedenoga problema može se pristupiti proučavanjem mozaičkoga naslijeđa Salone, provincijskog središta rimske Dalmacije. Brojni istraživači Salone u proteklih dvjesto godina na različite su načine postupali s mozaicima. Uz praksu konzerviranja i *in situ* zatrpavanja velikih mozaičkih cjelina, pojedini su primjerci strapirani i postavljeni na teško pokretne armiranobetonske podloge koje najčešće, u sklopu *sub divo* muzejskih postava, danas ubrzano propadaju. Cilj ovog rada je dati djelomičan presjek s informacijama o tehnikama konzerviranja-restauriranja u određenim povijesnim okolnostima, prošlim i aktualnim rješenjima za strapirane mozaike, te o suvremenim izazovima i modelima prezentacije mozaika izdvojenih iz izvornoga okružja. Uz materijalne mogućnosti koje danas imamo te tehnološka rješenja koja svakim danom postaju sve raznovrsnija i dostupnija, pitanje je možemo li i u kojoj mjeri popraviti počinjenu štetu? Nakon izlaganja osnovne faktografije o strapiranim mozaicima, radom se predlažu neka od najsuvremenijih rješenja virtualne, pa čak i augmentirane prezentacije, kojima se može rekreirati izvorni kontekst strapi-

context of the detached mosaic, even in situations where it has previously been compromised, or even destroyed.

ranog mozaika, čak i kad je on već narušen ili čak uništen.



Picture 1. Modern presentation solutions.  
(Source: <http://www.netminds.it/Templates/netmindsMetro/Images/aurea.jpg>)

Slika 1. Suvremena rješenja za prezentaciju  
(izvor: <http://www.netminds.it/Templates/netmindsMetro/Images/aurea.jpg>)

# Analytical view of detached mosaics / Analiza podignutih mozaika

Peter Berzobohaty, MA, freelance conservator, ACT – Advancing Conservation Tribe, pberzo@act-restaurierung.com / mr. art. Peter Berzobohaty, samostalni konzervator-restaurator, ACT - Advancing Conservation Tribe, pberzo@act-restaurierung.com

The ‘Great Palace Mosaic’ conservation project in Istanbul (1983-90), using aluminium-honeycomb supports as backing, will be illuminated critically: the colour found on site is sometimes *sinopia*, but at least in figurative mosaics, there is a polychrome painting underneath the *tesserae*. This fresco painting was totally ignored by the extraction team of 1983-85 (due to incorrect analyses). The fresco on the setting bed should be considered the most artistic layer in the process of making a mosaic. After the later superposition of the *tesserae*, it is usually forgotten by scientists. Parenthetically, the detachment of modern mosaics from walls is shown. Twofold facing – one flexible, one rigid – is used with a layer of Styrofoam in between, later to be cut through with electric wire, which opens the two facings. Cutting through the wall is performed with diamond cables. A new support (backing) is constructed on an aluminium-honeycomb base. Our team prefers preservations *in situ*, but this method is chosen in buildings from the 1950s or ‘60s that are at the end of their lifespan. We cut mosaics into sections of 5-10 m<sup>2</sup>. (Two examples of 20th-century mosaics are shown.) Having learned from this, for the extraction of ancient floor mosaics we propose cutting through the floor with diamond cables. Though perhaps more complex than traditional methods, it will not destroy the valuable fresco layer. For the facing, we recommend BEVA and glass fabric. This has already been used – in 1983 for the lifting of the ‘Great Palace Mosaic’ – and proven to be effective. Infra-red lamps are used to dry the ground only at the right time of year, when salts that will be forced into the extracted mortar of the laying bed are lower in the ground.

Konzervatorsko-restauratorski projekt *Mozaici Velike palače* u Istanbulu (1983.-1990.), u kojemu su kao podloge za mozaike korišteni aluminijski sačasti paneli, kritički će rasvijetliti da je boja otkrivena na lokalitetu katkad *sinopia*, no kod figuralnih prikaza mozaika, sasvim sigurno, ispod razine tesera nalazi se višebojna slika. Takva višebojna slika, freska, bila je potpuno zanemarena pri podizanju mozaika između 1983. i 1985. godine (zbog netočnih analiza). Freska na pripremljenoj žbuci trebala bi se smatrati najvažnijim umjetničkim slojem u postupku izrade mozaika. Ona se poslije prekriva slojem tesera pa je znanstvenici često zaborave. Uzgred će se prikazati i postupak odvajanja suvremenih mozaika sa zidova. U postupku se koristi dvoslojni *facing* (zaštitni sloj) - s jednim krutim i jednim fleksibilnim slojem - između kojih je sloj STYROFOAM-a (tvornički naziv za ekstrudiranu pjenu polistirena - “stiropor”); taj se sloj reže žicom kako bi se dva sloja *facinga* razdvojila. Rezanje kroz zidnu strukturu izvodi se dijaman-tnom sajлом. Nove podloge izrađene su s jezgrom od aluminijskih saća. Naš stručni tim pobornik je očuvanja *in situ*; stoga je navedena metoda primjenjivana na već dotrajalim građevinama iz pedesetih i šezdesetih godina 20. stoljeća. Mozaici su odvojeni u segmentima, a veličina je varirala od pet do deset četvornih metara. (Predstavit će se dva primjerka mozaika iz 20. stoljeća.) Na temelju stečenog iskustva, kod podizanja antičkih podnih mozaika predlažemo rezanje kroz podnicu mozaika dijaman-tnom sajлом. Premda je to, možda, složenija metoda od tradicionalnih, neće uništiti vrijedan sloj s freskom. Kao *facing* (zaštitni sloj) savjetujemo BEVA ljepljiva i tkanine sa staklenim vlaknima. Ti su se materijali primijenili još 1983. godine kod podizanja mozaika

Velike palače i dokazano su učinkoviti. Tlo se suši infracrvenim lampama samo u ono vrijeme godine kad se soli, koje bi mogle dospjeti u gornje slojeve žbuke podnice, nalaze u dubljim razinama poda.



Picture 1. Room A, unfinished – first integrations, 1989 (Photo: Peter Berzobohaty)

Slika 1. Soba A, nedovršeno - prve integracije, 1989. (foto: Peter Berzobohaty)

# Mosaics with Portland cement supports: Selected examples from Split / Mozaici s podlogama rađenim portland-cementom: odabrani primjeri u Splitu

Antonija Gluhan, MA, conservator-restorer, Section for Wall Paintings, Mosaics and Stucco, Split Department for Conservation, Croatian Conservation Institute, [agluhan@h-r-z.hr](mailto:agluhan@h-r-z.hr) / mr. art. Antonija Gluhan, konzervator-restaurator, Odsjek za zidno slikarstvo, mozaik i štuko, Restauratorski odjel u Splitu, Hrvatski restauratorski zavod, [agluhan@h-r-z.hr](mailto:agluhan@h-r-z.hr)

Lifting of mosaics from the original archaeological setting is not an unusual practice in conservation- restoration. Procedures of lifting, caused by various reasons, in the area of Split and its surroundings, have been carried out since the middle of the 20th century. Earlier interventions involved the mounting of lifted mosaic segments on prepared cement supports, whether they were to be placed *in situ* or presented on movable supports. We are familiar with the harsh influence of iron armature and Portland cement as a material for mosaic supports. This work will present the state of mosaics presented on movable supports at the Split Archaeological Museum and the possibility of separating the mosaic from the cement base following the example of the mosaic from Diocletian's Palace. The Split Archaeological Museum holds valuable mosaics from ancient Salona which were lifted and mounted on prepared cement supports during the archaeological excavations in the 1940s. The mosaics were created in the 3<sup>rd</sup> century by the Salona mosaic school/workshop. They were discovered in the 1920s in what is assumed to be the palace of the governor of the Roman province of Dalmatia. The most representative parts of the mosaics were detached from their original place in 1942, conserved and mounted on new supports made of reinforced concrete. They are presented as part of the permanent collection of the Museum, two in a *lapidarium* and the third on the wall of the museum's lobby. The remains of ancient mosaic floors are preserved along the northeast part of the choir of St. Domnius's Cathedral and were a decoration of the residential part of Diocletian's Palace. During the archaeological research in the 1960s and '70s, part of the mosaic was lifted and returned *in situ* by implanting it on reinforced-concrete bedding. Today the mosaic surfaces are presented *in situ* without shelter. In order to perform the mosaic's re-

Podizanje mozaika s izvornog mjesta nije neuobičajena praksa u konzerviranju-restauriranju mozaika. Zahvati podizanja mozaika, potaknuti različitim razlozima, na području Splita i okolice provode se od sredine 20. stoljeća. Prijašnji zahvati podrazumijevali su montiranje podignutih segmenata mozaika na pripremljene cementne podloge, bilo da je riječ o njihovom povratku *in situ* ili prezentaciji na prijenosnim podlogama.

Danas su poznati škodljivi učinci armatura i portland-cementa kod takvih podloga mozaika. Ovim radom prikazat će se stanje mozaika prezentiranih na pokretnim podlogama Arheološkog muzeja u Splitu te mogućnosti odvajanja mozaika od cementne podloge na primjeru mozaika iz Dioklecijanove palače.

Arheološki muzej u Splitu čuva vrijedne mozaike antičke Salone koji su još tijekom arheoloških istraživanja četrdesetih godina 20. stoljeća podignuti i montirani na pripremljene cementne podloge. Riječ je o mozaicima salonitanske škole-radionice mozaika nastalim tijekom 3. stoljeća. Mozaici su otkriveni dvadesetih godina 20. stoljeća u palači koja je vjerojatno pripadala namjesniku provincije Dalmacije. Naj-reprezentativniji dijelovi mozaika podignuti su 1942. godine s izvornog mjesta, konzervirani i montirani na armirane cementne podloge. Prezentirani su kao dio stalnog postava muzeja: dva u lapidariju, a jedan na zidu predvorja zgrade muzeja.

Ostaci mozaičkih podnica smješteni su uz sjeveroistočni dio kora katedrale sv. Dujma, a nekada su krasili stambeni dio Dioklecijanove palače. Tijekom arheoloških istraživanja šezdesetih i sedamdesetih godina 20. stoljeća dio mozaika bio je podignut

construction it was necessary to reposition the mosaic segments: a demanding task full of challenges, and needing to be performed with extreme caution.

i neprecizno vraćen na izvorno mjesto polaganjem u armiranu cementnu podnicu. Danas su mozaičke površine prezentirane *in situ* na otvorenom bez natkrivanja. Da bi se provela rekonstrukcija u tehnici mozaika, bilo je nužno repositionirati mozaičke segmente, što je zahtjevan zadatak prepun izazova kojemu treba pristupiti osobito oprezno.



Picture 1. Split Archaeological Museum, mosaic depicting Triton presented in the Museum's *lapidarium*. (Photo: Antonija Gluhan)

Slika 1. Arheološki muzej u Splitu, mozaički pano s prikazom Tritona izložen u lapidariju (foto: Antonija Gluhan)

# Examples and problems within presentation of mosaic fragments on removable media supports / Primjeri i problemi prezentacije dijelova mozaika na podlogama od reverzibilnih materijala

Nikola Upevce, freelance conservator-restorer, nikolaupevce@yahoo.com / Nikola Upevce, samostalni konzervator-restaurator, nikolaupevce@yahoo.com

Excavations of the ancient towns of Pompeii and Herculaneum during the 18<sup>th</sup> century discovered a large number of beautiful well-preserved wall paintings and mosaics decorating the walls and floors of Roman buildings. They were covered by ash during the eruption of Mount Vesuvius in AD 79. These excavations had a big impact on the art history of Europe. Due to the huge interest of the public in this revealed beauty of mosaics and wall paintings, the authorities needed to allow access to a large audience. It was the beginning of the Industrial Revolution, and with the development of new materials there were new possibilities and techniques for the presentation of these new findings. Various approaches for the conservation-restoration of mosaic fragments on movable supports have been developed since the beginning of the 19th century. In previous conservation-restoration treatments mortar of Portland cement and various combinations of lime and additives were used, sometimes with metallic reinforcements. This practice, however, was abandoned with the development of new knowledge of the materials and their behaviour through time. Portland cement has proven to be incompatible with lime mortar because it is harder, less flexible, and impermeable. With the development of new materials, other alternative backing systems and methods are now available in order to replace old materials with Aerolam panels made of thin fibreglass, a plastic material in the middle, and aluminium framing over the sides. Ever since the first conservation-restoration intervention there has been discussion between experts regarding different methods. The process of conservation-restoration is a highly specialized operation. Its aim is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for the original material and authentic documents. Cesare Brandi, in his *Theory of Restoration*,

Pri iskopavanjima antičkih gradova Pompeja i Herculaneja tijekom 18. stoljeća otkrivene su mnoge dobro sačuvane zidne slike i mozaici koji su ukrašavali zidove i podove antičkih građevina. Nakon erupcije Vezuva 79. g. n. e. bili su prekriveni pepelom. Navedena iskopavanja znatno su utjecala na europsku povijest umjetnosti, a zbog velikog zanimanja javnosti za spomenute zidne slike i mozaike, vlasti su morale omogućiti pristup brojnim posjetiteljima. Bilo je to vrijeme početka industrijske revolucije, a otkrića novih materijala potaknula su razvoj novih tehnika prezentacije tih pronalazaka. Od početka 19. stoljeća razvijeni su različiti pristupi konzerviranju-restauriranju dijelova mozaika na pokretnim podlogama. U prethodnim konzervatorsko-restauratorskim zahvatima obično su upotrebljavani žbuka od portland-cementa i različite kombinacije vapna i aditiva, povremeno s metalnim armaturama. Takve su prakse napuštene zbog razvoja novih materijala i njihova djelovanja. S vremenom se pokazalo da portlandski cement nije kompatibilan s vapnenom žbukom jer je tvrdi, manje fleksibilan i nepropustan. Pojavom novih materijala postale su dostupne alternativne podloge i metode zamjene starih materijala aerolam-pločama od tanke stakloplastike – plastični je materijal u sredini, a na stranicama aluminijski okvir. Stručne rasprave o prednostima i nedostacima različitih metoda počele su nakon prvih konzervatorsko-restauratorskih intervencija. Konzervatorsko-restauratorski postupci su visokospecijaliziran posao. Cilj je sačuvati i otkriti estetsku i povijesnu vrijednost spomenika, poštujući izvorne materijale i dokumente. Cesare Brandi, u svojoj *Teoriji restauracije*, opisuje restauraciju kao „metodološki trenutak u kojem se umjetničko djelo cijeni u svojem materi-

describes restoration as “the methodological moment in which the work of art is appreciated in its material form and in its historical and aesthetic duality, with a view to transmitting it to the future”.

jalnom obliku te u povijesnoj i estetskoj dvojnosti s ciljem prenošenja u budućnost“.

# Sites in Istria with ancient mosaics: an overview / Nalazišta u Istri s antičkim mozaicima, pregled

Đeni Gobić-Bravar, senior restorer, Archaeological Museum of Istria, [geni.gobic.bravar@gmail.com](mailto:geni.gobic.bravar@gmail.com) / Đeni Gobić-Bravar, viša restauratorica, Arheološki muzej Istre, [geni.gobic.bravar@gmail.com](mailto:geni.gobic.bravar@gmail.com)

The region of Istria was under Roman rule from 177 BC till the 4<sup>th</sup> century. During this period the peninsula saw the rise and fall not only of towns but also of many rural villas, most of which were located on the western coastline. While the towns somehow survived and developed through history, the villas were disused, abandoned, sometimes destroyed for the reuse of materials, and sometimes just destroyed by time and nature. However, there is not one ancient villa discovered in the region that has not yielded at least some mosaic fragments. History lovers and archaeologists have documented many of these sites. Sometimes they were able to give exhaustive data about the mosaics, their location, type and colours. Sometimes there are just notes on the many mosaic *tesserae* around the site. However, there are often situations in which the finding of a mosaic is accompanied not by a publication, but only by an internal report. In most cases, this is for very simple mosaics, white or black with a simple frame, fragments of mosaics that are too small to contribute to the analysis of the site itself, or about interesting mosaics that have never been studied, for reasons unknown. There are also a number of mosaics found during recent years awaiting publication but which have been primarily treated by the Conservation-Restoration Department of the Archaeological Museum of Istria, i.e. by the author of the lecture. Through research on old reports and photographs kept in the Documentation Department of the Archaeological Museum of Istria, it has been found that there are several unidentified and unpublished mosaics at various locations in Istria and Pula. The Istrian finds are Karpinjan, Katoro-Tijola, Lim Channel, Lovrečica, Pomer, Sorna and Vrsar. The lesser-known or unknown sites in Pula are the Circolo site, street *Glavinićeva ulica* 6, street *Istarska ulica*, street *Kandlerova ulica*, and street *Ulica JNA*. The mosaics will be displayed in a clear

Područje Istre bilo je pod rimskom vladavinom od 177. pr. Kr. sve do 4. stoljeća. U tom razdoblju na području poluotoka nastali su i razvijali se mnogi gradovi, ali i rustične vile koje su većinom bile smještene duž zapadne obalne linije. Dok su se gradovi donekle sačuvali i razvijali kroz povijest, vile su uglavnom izgubile svoju funkciju, bile su napuštene i uništene, katkad namjerno u svrhu ponovnog korištenja materijala, a katkad prirodnim procesima propadanja. Ipak, ne postoji otkrivena vila na području Istre u kojoj nije bilo mozaičkih fragmenata. Ljubitelji povijesti i arheolozi dokumentirali su mnogobrojna takva nalazišta. Ponekad su donosili iscrpne podatke o mozaicima, njihovoj lokaciji, tipologiji i bojama. Ponekad su dali tek bilješku o mnogobrojnim tesarama s nalazišta. Česte su, međutim, situacije u kojima pronalazak mozaika nije popraćen objavom, nego samo internim izvještajem. U većini slučajeva radi se o vrlo jednostavnim mozaicima, bijelima ili crnima s jednostavnom bordurom, o ulomcima mozaika koji su premali da bi kvalitetno pridonijeli analizi samoga nalazišta ili se pak radi o zanimljivim mozaicima koji iz nepoznatih razloga nikad nisu obrađeni. Postoji također nekoliko mozaika pronađenih posljednjih godina koji čekaju na objavu, ali ih je primarno obradio Konzervatorsko-restauratorski odjel Arheološkog muzeja Istre, odnosno autorica predavanja. Istraživanjem starih izvještaja i fotografija iz Dokumentacijskoga odjela Arheološkog muzeja Istre potvrđeno je nekoliko nepoznatih i neobjavljenih mozaika s raznih nalazišta u Istri i Puli. Istarska su nalazišta: Karpinjan, Katoro-Tijola, Limski kanal, Lovrečica, Pomer, Sorna i Vrsar. Manje poznata ili nepoznata nalazišta u Puli jesu: Circolo, Glavinićeva ul. 6, Istarska ulica, Kandlerova ulica, Ulica

way to enrich the knowledge of the large number of mosaics that once depicted the richness of the ancient architecture of the Istrian peninsula. A map of Istria, marked with all the sites where the presence of mosaic has been recorded, will be made in order to present every locality documented so far.

JNA. Mozaici će biti pregledno prikazani kako bi se obogatila saznanja o velikom broju mozaika koji su nekoć odražavali bogatstvo antičkih arhitektonskih zdanja istarskog poluotoka. U izradi je karta Istre s označenim nalazištima mozaika, kako bi se prezentiralo svako do sada dokumentirano nalazište.



Picture 1. Part of a mosaic from an ancient villa at Katoro near Umag, during excavation. Today covered. (Photo: Štefan Mlakar, Archive of the Archaeological Museum of Istria)

Slika 1. Dio mozaika iz antičke vile u Katoru kod Umaga, tijekom iskopavanja. Danas je prekriven. (foto: Štefan Mlakar, arhiva Arheološkog muzeja Istre)

# Fragments of the floor mosaic from the Basilica of St Mary Formosa in Pula – an example of various approaches to historical and contemporary presentation / Ulomci podnog mozaika iz bazilike sv. Marije Formoze u Puli – primjer različitih pristupa prezentaciji u prošlosti i danas

Toni Šaina, conservator-restorer, Department for Wall Paintings and Mosaics, Croatian Conservation Institute, [tsaina@h-r-z.hr](mailto:tsaina@h-r-z.hr), Željko Ujčić, senior curator, Archaeological Museum of Istria, [zeljko.ujcic@ami-pula.hr](mailto:zeljko.ujcic@ami-pula.hr) / Toni Šaina, konzervator-restaurator, Odjel za zidno slikarstvo i mozaik, Hrvatski restauratorski zavod, [tsaina@h-r-z.hr](mailto:tsaina@h-r-z.hr), Željko Ujčić, viši kustos, Arheološki muzej Istre, [zeljko.ujcic@ami-pula.hr](mailto:zeljko.ujcic@ami-pula.hr)

The Basilica of St Mary Formosa in Pula is, alongside the early Christian complex of Bishop Euphrasius in Poreč, the most important sacred monument with preserved mosaics from the period of Justinian's reconquest. Since the beginning of the 20<sup>th</sup> century, when A. Gnirs began the first research, several fragments of the mosaic have been collected and stored in the holdings of the Archaeological Museum of Istria. They have been preserved and presented on moveable supports using various techniques. Several fragments of the floor mosaic were found in the north and central nave, and in the north sacristy. The most famous fragment, depicting *Traditio legis*, was found in the apse of the south mausoleum. In 2016, as part of a multi-annual systematic research project led by the Archaeological Museum of Istria with the intention of creating an archaeological park, two fragments of the floor mosaic were discovered in the eastern part of the south nave. The larger fragment was ornamented with symmetrical, geometric, and stylised vegetative motifs (grapevine leaves and squares connected by a knot), while the smaller fragment was decorated with a wicker basket filled with fruit flanked by two water birds. The fragments were found directly beneath the humus layer, a fact that led to the decision to lift them and present them on a moveable support. The lifting of the mosaics began with the documentation of the condition they were found in and removal of the calcified mortar. After that, a facing was applied to the surface. The mosaic was then carefully lifted and transferred to the workshop, where it was conserved-restored, re-assembled and presented on a moveable Aerolam support, following modern professional standards. In reviewing all the fragments of the mosaic, one can question how to present them. With regard to the history of mosaic preservation on this site, experts have always aimed to preserve the cultural heritage by imple-

Bazilika sv. Marije Formoze u Puli je, uz starokršćanski kompleks biskupa Eufrazija u Poreču, najvažniji sakralni spomenik sa sačuvanim mozaicima na tlu Hrvatske iz vremena Justinijanove rekonkviste. Od prvog istraživanja A. Gnirsa početkom 20. stoljeća do danas, u fondusu Arheološkog muzeja Istre prikupljeno je više fragmenata mozaika, koji su konzervirani i prezentirani na pokretnim podlogama različitim metodama. Više ulomaka podnog mozaika pronađeno je na prostoru sjevernog i središnjeg broda te u sjevernoj sakristiji. Najpoznatiji zidni ulomak s prikazom *Traditio legis* nalazio se u apsidi južnog mauzoleja. U sklopu višegodišnjeg sustavnog istraživanja koje su proveli djelatnici Arheološkog muzeja Istre, a s ciljem stvaranja arheološkog parka, u istočnom dijelu južnog broda 2016. godine otkrivena su dva fragmenta podnog mozaika. Veći fragment ukrašen je simetričnim, geometrijskim i stiliziranim vegetabilnim motivima (list vinove loze i kvadrati povezani pletenicom). Manji fragment ukrašen je motivom pletene košare s plodovima voća, a bočno su prikazane dvije ptice močvarice. Mozaici su pronađeni neposredno ispod sloja humusa, što je bilo presudno u donošenju odluke da se fragmenti demontiraju i prezentiraju na pokretnoj podlozi. Radovi odvajanja mozaika od podloge počeli su izradom dokumentacije zatečenog stanja i površinskim uklanjanjem sloja tvrde kalcificirane žbuke, nakon čega je na površinu apliciran *facing* (zaštitni sloj). Mozaik je potom pažljivo odvojen od podloge i prenesen u radionicu gdje je konzerviran-restauriran, ponovo spojen u cjelinu i prezentiran na pokretnoj aerolam podlozi prema današnjim načelima struke. Pregledom svih fragmenata mozaika postavlja se pitanje načina prezentacije. Sagledavajući povijest zaštite mozaika toga nalazi-

menting technologies and materials available at the time. The museum building is currently under renovation, with plans to create an exhibition of all the mosaics from the basilica and place them in one room. Therefore, it is necessary to devise a presentation that would enable easier understanding of smaller fragments that were once in different parts of the basilica. The selection of new materials and techniques is the result of experience gained over the years and seeks to extend the lifespan of the artwork.

šta, stručnjacima je uvijek bio cilj očuvati kulturnu baštinu, pritom se koristeći tehnologijama i materijalima karakterističnima za vrijeme u kojem se primjenjuju. U tijeku je adaptacija zgrade Muzeja, pa se planira da se na jednome mjestu izlože svi mozaici pronađeni u bazilici. Stoga je potrebno osmisliti prezentaciju tako da se olakša čitanje manjih fragmenata koji su se nekad nalazili na različitim dijelovima bazilike. Odabir novih materijala i metoda rada rezultat je iskustava stjecanih dugi niz godina, kojim se nastoji produžiti životni vijek umjetnine.



Picture 1. Mosaic decorated with motifs of a wicker basket with fruit and two waterbirds. (Photo: Jovan Kliska)

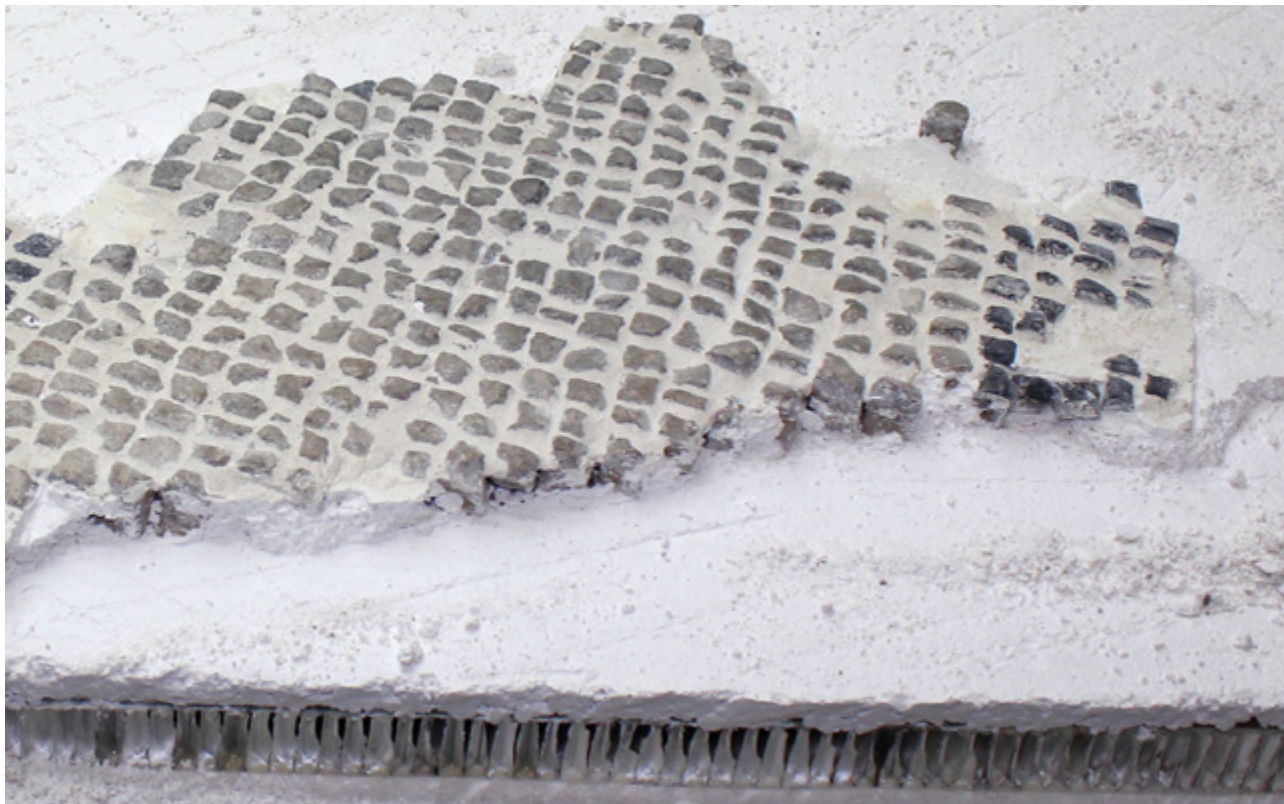
Slika 1. Pogled na mozaik ukrašen motivom pletene košare s plodovima voća i dvije ptice močvarice (foto: Jovan Kliska)

# A historical overview of movable supports for detached mosaics in Slovenia / Povijesni pregled pokretnih podloga za demontirane mozaike u Sloveniji

**Blaž Šeme, PhD, assist. prof. and conservator-restorer, Academy of Fine Arts and Design, University of Ljubljana, [blaz.seme@aluo.uni-lj.si](mailto:blaz.seme@aluo.uni-lj.si) / dr. sc. Blaž Šeme, docent i konzervator-restaurator, Akademija likovnih umjetnosti i dizajna, Sveučilište u Ljubljani, [blaz.seme@aluo.uni-lj.si](mailto:blaz.seme@aluo.uni-lj.si)**

The lecture reviews the materials used as movable supports for detached and transferred mosaics in Slovenia since the late 19<sup>th</sup> century: a topic that may be of interest to researchers, professionals and students of conservation-restoration, but which has not yet been sufficiently studied and could contribute a little to the history of the conservation-restoration of mosaics in Slovenia. The basic goal of the work is to study the use of various movable supports, and also materials and methods used for the back treatment and gluing of detached mosaics. There are materials and approaches (e.g. removal of bottom layers of the original plaster, temporary support material and consolidation on the back of the mosaic fragment, an intermediate 'intervention' layer, material for gluing) that are typical of certain periods, with their advantages and disadvantages. It is also interesting to examine how mosaics on movable supports are stored and how (if at all) they are publicly exhibited in museums and galleries. In addition, the latest trends and directions of development in conservation-restoration presentation of detached mosaics are examined and underlined. The main result of the research work is an insight into the past and present use of materials and techniques for fixing detached mosaics on temporary or permanent movable supports in Slovenia. The lecture presents the most interesting examples and mentions some noticeable conservator-restorers.

Ovo izlaganje donosi pregled materijala upotrebljivanih za izradu pokretnih podloga za demontirane mozaike u Sloveniji od kraja 19. stoljeća. Odabrana tema mogla bi biti zanimljiva istraživačima, stručnjacima i studentima konzervatorsko-restauratorskog usmjerenja jer dosad nije bila dovoljno proučavana, a mogla bi pridonijeti povijesti konzerviranja-restauriranja mozaika u Sloveniji. Osnovni je cilj ovog rada proučiti upotrebu različitih pokretnih podloga, kao i primijenjenih materijala i tehnika u zahvatima na poleđini mozaika i za lijepljenje podignutih mozaika. Postoje materijali i pristupi karakteristični za određeno razdoblje (poput uklanjanja donjih slojeva izvorne žbuke, izrade podloge od privremenog materijala i konsolidacija na pozadinu fragmenta mozaika, srednji „interventni“ sloj, materijal za lijepljenje), a svaki ima prednosti i nedostatke. Zanimljivo je i ispitati kako se čuvaju mozaici na pokretnim podlogama te kako se (ako uopće) javno izlažu u muzejima i galerijama. Osim toga, razmotrit će se i istaknuti najnoviji trendovi i smjernice u razvoju konzerviranja-restauriranja te prezentacije podignutih mozaika. Glavni rezultat istraživanja jest uvid u prošlu i sadašnju upotrebu materijala i tehnika za fiksiranje podignutih mozaika na privremene ili trajne pokretne podloge u Sloveniji. Izlaganjem će se predstaviti najzanimljiviji primjeri i navesti priznati konzervatori-restauratori.



Picture 1. Original Roman mosaic *tesserae* placed on an aluminium honeycomb panel and layers of new plaster during conservation-restoration treatment at the Academy of Fine Arts and Design. (Photo: Blaž Šeme)

Slika 1. Izvorne tesere rimskog mozaika postavljene na ploču s aluminijском саčastом jezgrom i slojevi nove žbuke prilikom konzervatorsko-restauratorskih zahvata na Akademiji likovnih umjetnosti i dizajna (foto: Blaž Šeme)

# Approaches to the protection and preservation of the cultural and historical values of mosaics in Montenegro / Pristupi u zaštiti i očuvanju kulturno-povijesnih vrijednosti mozaika u Crnoj Gori

Dobriła Vlahović, conservator-restorer, expert consultant for immovable cultural heritage, Ministry of Culture of Montenegro, [dobriła.vlahovic@mku.gov.me](mailto:dobriła.vlahovic@mku.gov.me) / Dobriła Vlahović, konzervator-restaurator, stručni savjetnik za nepokretnu kulturnu baštinu, Ministarstvo kulture Crne Gore, [dobriła.vlahovic@mku.gov.me](mailto:dobriła.vlahovic@mku.gov.me)

The special value of Montenegrin cultural heritage is a rare example of ancient, Roman and early Christian mosaics, which, with their many centuries of existence, point to the rich history and culture of this area. They are located mostly on the Montenegrin coast, especially in the area of the Budva municipality and the Bay of Kotor. They represent an integral part of each of the old urban units (Budva Old Town, Risan ...) or attractive locations (Mirište in Petrovac). Because of their outstanding cultural and historical values, some are legally protected and possess the status of cultural property. Their protection and preservation are of the utmost importance, to be transmitted to future generations in authentic appearance. Proper access to protection and preservation is of crucial importance. It is always sought and applied by a conservation method that will give the best results. How and in what way this demanding procedure can be implemented can not be solved for all cases in the same way, or by some regulation, but must be solved from case to case. Many different methods are described in the literature. Many are widely accepted and give excellent results, while some methods, because of their specificity, apply rarely and only when they are judged to have acquired certain conditions for their performance. We try to keep the mosaics on the spot (*in situ*), but in cases where they are endangered and threatened with disappearance, strapping is necessary and a transposition method is applied to the new substrate. In Montenegro, in the catastrophic earthquake of 1979, many objects and mosaics were damaged. Based on the conservation interventions carried out by government institutions in cooperation with UNESCO experts, since the end of the last century until today, further extensive protection measures have been carried out, with the aim of revitalizing and restoring the threatened area, but during the

Posebnu vrijednost crnogorske kulturne baštine čine rijetki primjerci antičkih, rimskih i ranokršćanskih mozaika, koji višestoljetnim postojanjem upućuju na bogatu povijest i kulturu Crne Gore. Nađeni su uglavnom na crnogorskom primorju, naročito na području Općine Budva i Bokokotorskog zaljeva. Integralni su dio pojedinih starih urbanih cjelina (Stari grad Budva, Risan...) ili atraktivnih lokacija (Mirište u Petrovcu). Zbog izuzetnih kulturno-povijesnih vrijednosti neki su mozaici zakonom zaštićeni i imaju status kulturnog dobra. Njihova je zaštita iznimno važna za očuvanje u izvornom obliku i u budućnosti. U zaštiti mozaika presudan je pravilan pristup. Uvijek se traži i primjenjuje konzervatorska metoda koja će za određeni mozaik dati najbolje rezultate; načini realizacije takvog zahtjevnog postupka ovise o pojedinačnom mozaiku. U literaturi je opisano mnogo metoda. Neke su široko prihvaćene i daju odlične rezultate, dok se neke zbog svoje specifičnosti primjenjuju rijetko i samo kad se ocijeni da su stvoreni uvjeti za njihovo izvođenje. Mozaike nastojimo sačuvati *in situ*, međutim kad su ugroženi i prijeti im nestanak, nužno je strapiranje i primjenjuje se metoda transpozicije na novu podlogu. U Crnoj Gori od posljedica katastrofalnog potresa 1979. godine stradali su brojni kulturni objekti, pa i mozaici. Na osnovi konzervatorskih intervencija državnih institucija u suradnji sa stručnjacima UNESCO-a, od kraja prošloga stoljeća do danas provedene su opsežne mjere zaštite, s ciljem revitalizacije i obnove ugroženog područja. No tijekom sanacijskih radova došlo se do novih otkrića, među kojima su i fragmenti podnih mozaika. U cilju njihova očuvanja primjenjivane su različite metode zaštite.

conservation works new discoveries have been made, among them fragments of floor mosaics. Various methods of protection have been applied for their conservation.



Picture 1. Remains of the Roman villa Risan from the 3rd century – floor mosaic depicting Hypnos, the god of sleep. (Photo: Dobriła Vlahović)

Slika 1. Ostaci rimske vile Risan iz 3. stoljeća – podni mozaik s prikazom Hipnosa, boga sna (foto: Dobriła Vlahović)

# Condition and vulnerability of Roman mosaics in Bosnia and Herzegovina / Stanje i ugroženost rimskih mozaika na tlu Bosne i Hercegovine

Prof. Adnan Busuladžić PhD, Department of Archaeology, Faculty of Philosophy, University of Sarajevo, [adnan.busuladzic@ff.unisa.ba](mailto:adnan.busuladzic@ff.unisa.ba) / prof. dr. sc. Adnan Busuladžić, Katedra za arheologiju, Filozofski fakultet Univerziteta u Sarajevu, [adnan.busuladzic@ff.unisa.ba](mailto:adnan.busuladzic@ff.unisa.ba)

Some fifty mosaics have been discovered to date in Bosnia and Herzegovina. Some sites, such as Ljubomir in Herzegovina, or Suvaja in north-western Bosnia, probably also had mosaics, but these were so badly damaged that their presence is indicated only by *tesserae*. Mosaics have been found in Bosnia and Herzegovina mainly at the sites of Roman villas, large and small, with only a few in Roman baths, from which it may be concluded that they were commonly an essential feature of residential architecture. The finest, and also the most numerous, mosaics include those of the large Višići villa near Čapljina, where there were fifteen very fine mosaics of various sizes. Another villa of note is the one at Panik near Bileća, where nine mosaics were found. Others have been found at sites in the urban settlement of *Aqua S...*, not far from present-day Sarajevo: twelve mosaics were found there in several urban villas and hospicia. Stolac, in Herzegovina, is another site where a total of eight finely worked mosaics were found in a number of small villas. In addition, two mosaics were found at the site of the major urban and administrative centre of Domavia in north-eastern Bosnia, one in Sarajevo, and the remains of two at the site of the Tišina villa near Zenica. A study of photographic documentation has revealed the presence of yet another mosaic in a relatively good state of preservation. In recent years the site of Skelani, in Srebrenica municipality, north-eastern Bosnia, has yielded a large mosaic, part of a substantial public edifice in the urban centre known as *Municipium Malvesiatium*. The fates of the mosaics at these sites differ according to the states of affairs at the time of the archaeological excavations, as well as immediate knowledge of plans for the site. To save the mosaics when the site at Panik was flooded and a large reservoir was created, they were removed and re-laid at the National Museum of Bosnia and

Na prostoru današnje Bosne i Hercegovine do danas je otkriveno oko 50 mozaičkih površina. Pretpostavlja se da je na nekim nalazištima, poput Ljubomira u Hercegovini ili objekta Suvaja u sjeverozapadnoj Bosni, također bilo mozaika, ali je stupanj devastacije bio tolik da se ni jedan segment nije sačuvao osim tesera, koje svjedoče o postojanju mozaika. Mozaici na tlu Bosne i Hercegovine pronađeni su ponajprije na nalazištima rimskih vila manjih i većih dimenzija i rjeđe na nalazištima termi, pa se može ustvrditi da su bile vrlo često neizostavan dio stambene arhitekture. Među najbogatije, ali i najmnogobrojnije primjerke mogu se uvrstiti mozaici s nalazišta velike vile Višići kod Čapljine. Na tom je nalazištu bilo 15 većih i manjih vrlo reprezentativnih mozaika. Osim tog objekta, arheološki je zanimljiva još jedna vila na nalazištu Panik kod Bileće. Ondje je pronađen također znatan broj mozaika, devet. Uz ta dva reprezentativna objekta, mozaici su pronađeni i na nalazištima urbanog naselja „Aqua S...” nedaleko od današnjega Sarajeva. Na tom nalazištu pronađeno je u više odvojenih objekata urbane vile i hospicija 12 mozaika. Područje Stoca u Hercegovini također je mjesto otkrića vrlo dobro izvedenih mozaika. U više manjih vila pronađeno je osam primjeraka mozaika. Manji broj mozaika pronađen je i na nalazištima velikog urbanog i administrativnog središta Domavija u sjeveroistočnoj Bosni, gdje su pronađena dva mozaika; na nalazištu u Sarajevu pronađen je jedan primjerak i na nalazištu vile Tišina kod Zenice pronađeni su ostaci dvaju mozaika. Temeljem analize pronađene fotodokumentacije utvrđeno je postojanje još jednog mozaika koji je razmjerno dobro očuvan. Posljednjih godina na nalazištu Skelani u općini Srebrenica, u sjeveroistočnoj Bosni, otkriven je mo-

Herzegovina, where they remain. They consist of several pieces of a large mosaic from a building with a cruciform footprint, and another from a corridor. The remaining mosaics were too badly damaged to be removed. Those that were taken to the National Museum are in good condition, and in 2008 a number of them were conserved-restored and framed, forming part of a large thematic exhibition, "The art of Roman mosaics in Bosnia and Herzegovina". The National Museum also houses mosaics from Stolac and part of a mosaic from *Aqua S...* near Sarajevo. In addition, the Zenica City Museum also houses fragments of two mosaics. Mosaics remaining *in situ* include those of the urban villa at *Aqua S...* near Sarajevo, a mosaic composed of the repeating geometric motif of the swastika or meander at Putovići villa near Zenica, a mosaic in a large public edifice in Skelani near Srebrenica, and in particular the mosaics at Višići near Čapljina. These last are in very poor condition, the entire site being within an area of intensive farming, which poses a serious threat to these mosaics. The Višići mosaics are also at risk from frequent flooding in the area, when local residents have to use boats to get about. The mosaic discovered a few years ago at Skelani is the best preserved. This has been the subject of detailed studies, analysis, treatment, reconstruction and conservation, and the entire site is well cared for. It is a great pity that, apart from reconstructions and poor-quality black-and-white photographs, there remains no evidence of the condition of the mosaics at some of the sites named above. Further investigations are needed to review the situation at all these sites, and where necessary the surviving mosaics should be lifted and removed to museums. The mosaics that have been so treated to date are in relatively good condition, and are maintained by conservators and archaeologists.

zaik velikih dimenzija; bio je dio velike javne zgrade u urbanom sjedištu poznatom kao *Municipij Malvesiatium*. Sudbina mozaika na navedenim mjestima je različita, ovisno o situaciji u arheološkim istraživanjima, ali i o neposrednim saznanjima o planovima s nalazištem. Zbog potopljenog područja i stvaranja umjetne vodene aglomeracije, mozaici s nalazišta Panik su izvađeni i dopremljeni u Zemaljski muzej Bosne i Hercegovine, gdje se i danas nalaze. Riječ je o većem broju komada jednog velikog mozaika iz tzv. zgrade križne osnove i još jednog primjerka iz hodnika. Ostali su mozaici bili toliko devastirani da je njihova dislokacija bila nemoguća. Mozaičke površine koje su prenesene u Zemaljski muzej Bosne i Hercegovine u dobrom su stanju. Godine 2008. znan broj je konzerviran-restauriran i uokviren te izložen na velikoj tematskoj izložbi „Umjetnost antičkih mozaika na tlu Bosne i Hercegovine“. U prostorima Zemaljskog muzeja nalaze se i mozaici iz Stoca te dio mozaika s „Aqua S...“ kod Sarajeva. U Muzeju grada Zenice pohranjeni su fragmenti dva-ju mozaika. *In situ* su ostali mozaici rimske urbane vile na nalazištu „Aqua S...“ u okolici Sarajeva, mozaik ponavljanog geometrijskog motiva svastike-meandra na nalazištu vile Putovići kod Zenice, velikog javnog objekta u Skelanima kod Srebrenice te mozaici na nalazištu Višići kod Čapljine. Potonji su u vrlo lošem stanju jer se cijela površina nalazi na obuhvatu intenzivne poljoprivredne proizvodnje i obrade zemljišta, što vrlo ozbiljno ugrožava mozaike. Tome pridonose i razmjerno česte poplave u višićkom kraju, kad se i okolno stanovništvo mora koristiti čamcima za komunikaciju u naselju. Može se reći da je u najboljem stanju *in situ* primjerak otkriven prije nekoliko godina na nalazištu Skelana. Ta je mozaička površina predmet detaljnih radova, analiza, tretmana, rekonstrukcija i konzerviranja, a cijelo je nalazište i dobro zbrinuto. Velika je šteta što osim rekonstrukcija i loših crno-bijelih fotografija nemamo nikakav trag o stanju mozaika na nekim od navedenih nalazišta. Situacija na terenu zahtijeva revizijska istraživanja i gdje god je nužno vađenje preostalih mozaika i njihovu dislokaciju u muzejske ustanove. Mozaici u muzejima su u razmjerno dobrom stanju. Za njihovo održavanje i zaštitu brinu se konzervatori i arheolozi.

# Aquileia Mosaics / Mozaici iz Akvileje

**Marta Novello, PhD, director of the National Archaeological Museum of Aquileia, [marta.novello@beniculturali.it](mailto:marta.novello@beniculturali.it) / dr. sc. Marta Novello, ravnateljica Nacionalnog arheološkog muzeja u Akvileji, [marta.novello@beniculturali.it](mailto:marta.novello@beniculturali.it)**

Mosaics are one of the specific characteristics of the archaeological and cultural heritage of the Roman sites of Aquileia: they are visible in the archaeological outdoor areas, in the National Archaeological Museum, in the Museum of the Early Christian Age, and in the Christian Basilica. The different methods of setting used over time, such as those now current, show a significant synthesis of the methodological developments – since the first decades of the 20<sup>th</sup> century– of the exhibiting of this problematic class of artefacts to the public. The need to exhibit, in fact, determined the early experimentations of detachment techniques from the original substrates and relocation on new supports that could make it possible to show them both in the archaeological outdoors and within the museum. However, the need for new exhibition solutions has recently revised the methods used in the past, to the point of considering new settings that should be appropriate not only for visual appreciation but also for conservational problems of mosaics. The last mosaic floors recently found in several areas of Aquileia have been placed inside protective structures, just to make it possible to keep them in situ. On several occasions, new exhibition solutions have been realized by removing cement-made substrates and using new settings on more suitable supports. This lecture aims to illustrate recent works executed in Aquileia and to show, for the first time, the interventions planned in the context of the new setting of the National Archaeological Museum, which will allow some of the most famous mosaics of Aquileia to play a new role within the exhibition halls.

Mozaici su jedna od karakteristika arheološke i kulturne baštine rimskih nalazišta u Akvileji. Prezentirani su na arheološkim nalazištima na otvorenome, u Nacionalnom arheološkom muzeju, u Muzeju ranog kršćanstva i u kršćanskoj bazilici. Od početka 20. stoljeća do danas primjenjivale su se različite tehnike postavljanja mozaika koje svjedoče o znatnom metodološkom napretku u javnom izlaganju te problematične vrste artefakata. Zapravo je potreba za izlaganjem odredila rane eksperimente s tehnikama odvajanja mozaika od originalnih podloga i njihovo premještanje na nove podloge koje su omogućile njihovo prezentiranje na otvorenim arheološkim nalazištima, ali i u muzejima. No potreba za novim rješenjima u izlaganju potaknula je promjenu u metodologiji, pa se razmatraju nova okruženja, prikladna ne samo za vizualno isticanje mozaika nego i za rješavanje konzervatorskih problema. Nedavno pronađeni podovi s mozaicima na nekoliko nalazišta u Akvileji postavljeni su unutar zaštitnih struktura kako bi mogli ostati na mjestu pronalaska. U nekoliko slučajeva nova rješenja izvedena su uklanjanjem cementnih podloga i prijenosom mozaika na prikladnije podloge. Cilj je ovog predavanja predstaviti nedavne radove u Akvileji i prikazati, prvi put, planirane intervencije u kontekstu novog postava Nacionalnog arheološkog muzeja, koji će u izložbenim prostorijama, na nov način, prezentirati neke od najpoznatijih mozaika iz Akvileje.



Picture 1. Aquileia, Museo Archeologico Nazionale. Wall-mosaic fragments from a nymphaeum. (Photo: Elena Braidotti)

Slika 1. Fragmenti zidnog mozaika iz nimfeja. Akvileja, Nacionalni arheološki muzej (foto: Elena Braidotti)

# Problems and Challenges in Conserving the Mosaic Heritage of Augusta Traiana (Stara Zagora) / Problemi i izazovi zaštite mozaičke baštine iz Auguste Traiane (Stara Zagora)

Reneta Karamanova-Zlatkova, conservator-restorer, National Archaeological Institute with Museum, Bulgarian Academy of Sciences, [reneta\\_karamanova@yahoo.com](mailto:reneta_karamanova@yahoo.com) / Reneta Karamanova-Zlatkova, konzervator-restaurator, Nacionalni arheološki institut i muzej, Bugarska akademija znanosti, [reneta\\_karamanova@yahoo.com](mailto:reneta_karamanova@yahoo.com)

The Regional Museum of History in Stara Zagora has a rich collection of antique floor mosaics. The mosaics are part of the antique city of *Augusta Traiana*. This report discusses six mosaics found at various archaeological sites in the city and transferred to new movable supports. Various materials and techniques have been used for conservation-restoration. The results vary: some are good, others are not. The conservation-restoration problems are very varied and serious. Some mosaics are in a very critical condition and need serious intervention in order to be rescued. In some cases, documentation is missing; in others, it is not complete. The biggest problem with these mosaics is the use of conservation-restoration interventions that do not allow, or seriously hinder, re-restoration. It is interesting that the oldest mosaic, restored in 1913, is in much better condition than mosaics restored in the last 10-15 years. On the other hand, there are positive examples of mosaics that were well documented and restored with modern methods and materials, allowing easy separation of the new foundations from the original, and easy re-restoration if necessary.

Regionalni povijesni muzej u bugarskoj Staroj Zagori čuva bogatu zbirku antičkih podnih mozaika, koji su bili dio antičkog grada *Augusta Traiana*. U ovom će se izlaganju obraditi šest mozaika s različitih arheoloških nalazišta u gradu, prenesenih na nove prijenosne podloge. Za konzerviranje-restauriranje su upotrijebljeni različiti materijali i tehnike, no rezultati nisu uvijek bili zadovoljavajući. Problemi konzerviranja-restauriranja raznovrsni su i ozbiljni. Dio mozaika je u iznimno lošem stanju pa je potrebna složenija stručna intervencija kako bi ih se spasilo. U nekim slučajevima dokumentacija ne postoji ili je nepotpuna, no najveći su problem ireverzibilni ili teško reverzibilni prijašnji konzervatorsko-restauratorski zahvati na tim mozaicima. Zanimljivo je da je najstariji mozaik, restauriran 1913. godine, u mnogo boljem stanju od mozaika restauriranih prije deset ili petnaest godina. S druge strane, postoje i primjeri pozitivne prakse, u kojima su svi postupci dobro dokumentirani, a mozaici su restaurirani primjenom suvremenih tehnika i materijala, što omogućuje laganu odvajanje recentne podloge od originalne i lakše ponovno restauriranje.



Picture 1. Detail of the 'Dionysian Procession' mosaic in Stara Zagora, Bulgaria, after restoration: a good example of restoration treatment. (Photo: Methodi Zlatkov)

Slika 1. Detalj mozaika Dionizijska povorka iz Stare Zagore u Bugarskoj nakon restauracije – dobar primjer restauratorskog zahvata (foto: Methodi Zlatkov)

# Issues in the preservation of the original mortar in detached mosaics: past experiences and future research / Problemi očuvanja izvorne žbuke na podignutim mozaicima: prijašnja iskustva i buduća istraživanja

Stefania Chlouveraki, PhD, Athens University of Applied Sciences, [schlouve@teiath.gr](mailto:schlouve@teiath.gr), Nikolaos Lymeropoulos, Athens University of Applied Sciences, Andreas Gkizis, Athens University of Applied Sciences, Eleftherios Charalambous, PhD, Department of Antiquities of Cyprus / dr. sc. Stefania Chlouveraki, Sveučilište primijenjenih znanosti u Ateni, [schlouve@teiath.gr](mailto:schlouve@teiath.gr), Nikolaos Lymeropoulos, Sveučilište primijenjenih znanosti u Ateni, Andreas Gkizis, Sveučilište primijenjenih znanosti u Ateni, dr. sc. Eleftherios Charalambous, Odjel za starine Cipar

The detachment of mosaics is known to be the most aggressive and destructive method that has been extensively used in the past in the conservation-restoration of mosaics, the main reasons being the destruction of the archaeological context and the application of inappropriate backing supports. The removal of the original mortar of the mosaics after their detachment, and its replacement with new backing materials, further results in a loss of the integrity of the *tesselatum* and often compromises the aesthetic value and authenticity of ancient mosaics. Only a few cases are reported in the bibliography, where effort has been made to preserve a substantial part of the original bedding mortar of detached mosaics. This presentation focuses on backing systems that have been used so far for the preservation of a portion of the original mortar at the back of the mosaic, and it discusses the potential of current and future research towards the development of backing systems which allow the preservation of the original mortar layers where possible. Material aspects, as well as ethical and philosophical issues, will be discussed with reference to case studies of both floor and wall mosaics.

Podizanje mozaika najagresivnija je i najdestruktivnija metoda koja se u prošlosti primjenjivala u konzerviranju-restauriranju mozaika. Glavni je razlog uništavanje arheološkog konteksta i montaža mozaika na neprimjerene podloge. Uklanjanje izvorne žbuke s mozaika nakon njihova podizanja i njezina zamjena novim materijalima uzrokuje daljnji gubitak integriteta *tesselatuma* pa često narušava estetsku vrijednost i autentičnost antičkih mozaika. U literaturi je zabilježeno samo nekoliko slučajeva pokušaja očuvanja većeg dijela izvorne žbuke pri podizanju mozaika. Ovo izlaganje fokusira se na podloge koje su se dosad upotrebljavale za očuvanje dijela izvorne žbuke poleđine mozaika. Osim toga, u izlaganju će se raspravljati o postojećim i budućim istraživanjima razvoja podloga koje će, kad to bude moguće, biti primjerene za očuvanje originalnih slojeva žbuke. Prema odabranim primjerima podnih i zidnih mozaika raspravljat će se o materijalnim aspektima, ali i o etičkim i filozofskim pitanjima.



Slika 1. Spajanje dijelova mozaika na prijenosnoj izlivenoj podlozi (foto: Stefania Chlouveraki)

Picture 1. Puzzling mosaic sections supported on portable cast mounts. (Photo: Stefania Chlouveraki)

# Conservation-restoration of a mosaic with a Christ monogram from Mediana / Konzerviranje-restauriranje mozaika s Kristovim monogramom iz Medijane

Marijana Protić, painter-restorer, consultant, Institute for the Protection of the Cultural Heritage of Serbia, malinana@live.com, Nemanja Smičiklas, painter-restorer, consultant, Institute for the Protection of the Cultural Heritage of Serbia, dontpanicdesign@gmail.com / Marijana Protić, slikar restaurator, savjetnik, Republički zavod za zaštitu spomenika kulture Srbije, malinana@live.com, Nemanja Smičiklas, slikar restaurator, savjetnik, Republički zavod za zaštitu spomenika kulture Srbije, dontpanicdesign@gmail.com

A mosaic with a Christ monogram was found during the archaeological campaign in 2007 at the archaeological site of Mediana. After the demolition of the residential complex on Mediana, a completely new type of settlement was formed on its remains; among other buildings, two churches were built, representing a sacred complex dated to the end of the 4<sup>th</sup> century or the beginning of the 5<sup>th</sup>. The south church is a single nave building; it consists of a large, elongated *narthex* and a *naos*. On the east side there is a spacious apse, 2 m long. In the mortar floor of the nave, in the place of the ambo, a Christ monogram was made in mosaic technique out of secondary-used *tesserae*. This lecture will present conservation-restoration work on the detached mosaic with the Christ monogram and the process of problems and solutions relating to its presentation, as well as the making of a copy with the usage of modern materials for *in situ* presentation.

Mozaik s Kristovim monogramom otkriven je u arheološkoj kampanji 2007. godine na arheološkom nalazištu Medijana kod Niša. Poslije rušenja rezidencijalnog kompleksa na Medijani, na njegovim se ostacima formira posve novi tip naselja; između ostalog, sagrađene su dvije crkve koje čine sakralni kompleks koji se datira na kraj 4. ili početak 5. stoljeća. Južna crkva je jednobrodna građevina; sastoji se od većeg, izduženog narteksa i naosa. Na istočnoj strani je prostrana apsida, dubine 2 m. U žbukanom podu u naosu na mjestu ambona nalazi se kristogram izveden od sekundarno korištenih tesera. Ovo predavanje predstavlja konzervatorsko-restauratorske radove na dislociranom mozaiku s Kristovim monogramom i tijek rješavanja problema vezanih uz njegovu prezentaciju, kao i za izradu kopije korištenjem modernih materijala za prezentaciju *in situ*.



Picture 1. Christogram after conservation-restoration. (Photo: Nemanja Smičiklas)

Slika 1. Kristogram nakon završetka konzervatorsko-restauratorskih radova (foto: Nemanja Smičiklas)

# Fragments of floor mosaics on portable substrates from the archaeological site of Gardun, near Trilj: problems, presentation, context / Ulomci podnog mozaika na prenosivim podlogama s arheološkoga nalazišta Gardun pokraj Trilja; problematika, prezentacija, kontekst

Nikola Radošević, conservator-restorer, Arts Academy, University of Split, radniko@gmail.com, Branko Matulić, PhD, consultant conservator-restorer, University of Split, branko.matulic@unist.hr, Krešimir Bosnić, conservator-restorer, Arts Academy, University of Split, kbosnic1@gmail.com / Nikola Radošević, konzervator-restaurator, Umjetnička akademija Sveučilišta u Splitu radniko@gmail.com, dr. sc. Branko Matulić, konzervator-restaurator savjetnik, Sveučilište u Splitu, branko.matulic@unist.hr, Krešimir Bosnić, konzervator-restaurator, Umjetnička akademija Sveučilišta u Splitu, kbosnic1@gmail.com

In the Republic of Croatia there is an increasing number of mosaic floors, or preserved parts of them, detached from their original substrates, often placed on portable substrates during conservation-restoration work. Among them are the remnants of the floor mosaics from one of the central buildings (possible *praetorium*) of the archaeological site of Gardun, known for the Roman military camp of Tilverium. The remains of the mosaics, five of which were discovered during the excavation period between 1997 and 2001, were detached from the original substrate, and in 2006 were placed on new, portable substrates made of aluminium-honeycomb sandwich panels. At the end of the work, the most representative mosaic fragment, with partially preserved bull-motif decoration, was exhibited as part of the permanent exhibition of the Museum of the Trilj Region, while the remaining fragments were stored in the depot (waiting for more auspicious conditions enabling their presentation). The central part of the bull emblem is, as such, exhibited outside its original context and function, and its value is diminished because of the presentation methods. The paper will describe the circumstances and context of laying fragments from Gardun on portable substrates, and their current presentation. The mode of presentation will be problematized, as will the possibility of returning conserved mosaic fragments to the site, and the proposal of self-sustainability through the intermodal application of multimedia and the fragments themselves. By comparing some of the existing positive or negative examples from Croatia and abroad, we will try to determine guidelines for the suitable future presentation and storage of the fragments from Gardun. The aim of this paper is to focus on the issues faced by the majority of mosaics detached from their original substrates.

U Republici Hrvatskoj sve je više mozaičnih podnica ili njihovih sačuvanih dijelova podignutih s izvornih položaja, koji se u sklopu konzervatorsko-restauratorskih zahvata često postavljaju na prenosive podloge. Među njima se nalaze i ostaci podnoga mozaika iz jedne od središnjih zgrada (mogući *praetorium*) arheološkoga nalazišta Gardun, poznatoga po nalazištu rimskog vojnog logora Tilverija. Ostaci mozaika, čijih je pet ulomaka otkriveno tijekom istraživanja između 1997. i 2001. godine, prilikom konzervatorsko-restauratorskih zahvata odvojeni su od izvorne podloge, te 2006. postavljeni na nove, prenosive podloge od sačastih aluminijskih panela. Nakon završetka radova, najreprezentativniji ulomak mozaika, s djelomično očuvanim prikazom bika, izložen je kao dio stalnog postava Muzeja triljskoga kraja, dok su preostali ulomci pohranjeni u depo (čekaju se neke sretnije okolnosti kojima bi se omogućilo njihovo izlaganje). Središnji dio embleme s prikazom bika izložen je izvan izvornog konteksta i funkcije, a vrijednost mu je umanjena upravo zbog načina i mjesta prezentacije. U radu će biti opisane okolnosti i kontekst postavljanja ulomaka mozaika iz Garduna na prenosive podloge te njihova trenutačna prezentacija. Problematizirat će se način prezentacije, mogućnost vraćanja konzerviranih mozaičkih ulomaka *in situ* (na nalazište) te prijedlog samoodrživosti intermodalnom primjenom multimedije i samih ulomaka. Komparacijom s nekoliko postojećih pozitivnih ili negativnih primjera iz Hrvatske i inozemstva pokušat će se odrediti smjernice za adekvatnu buduću prezentaciju i pohranu ulomaka mozaika iz Garduna. Cilj rada je na temelju izloženih primjera upozoriti na probleme koji prate gotovo sve mozaike odvojene od izvorne podloge.

Picture 1. Partially preserved mosaic floor from Gardun archaeological site with the depiction of the bull as central motif before detachment from its original substrate. (Photo: Branko Matulić, Tonči Borovac)

Slika 1. Djelomično očuvani dio središnje mozaične podnice s prikazom bika s arheološkog nalazišta Gardun prije odvajanja od izvorne podloge (foto: Branko Matulić, Tonči Borovac)



Picture 2. Aerolam panel with the fragment of the mosaic from Gardun with the depiction of the bull that is exhibited in the Museum of the Trilj Region, after its detachment from the original substrate and the conservation-restoration work. (Photo: Nikola Radošević)

Slika 2. Ulomak mozaične podnice s prikazom bika nakon odvajanja od izvorne podloge i konzervatorsko-restauratorskih radova, koji su uključivali polaganje ulomaka na prenosive kompozitne sačaste (aerolam) ploče; trenutno je izložen kao dio stalnog postava Muzeja Triljske krajine. (foto: Nikola Radošević)



# Mosaics in museums – approaches to designing movable supports for detached mosaics / Mozaici u muzejima – pristupi kreiranju pokretnih podloga za dislocirane mozaike

Maja Franković, MA, senior conservator, Central Institute for Conservation, maja.frankovic@cik.org.rs, Dunja Davidović Gnjatović, senior conservation technician, Central Institute for Conservation, dunja.davidovic@cik.org.rs, Dušan Maksimović, conservation technician, Central Institute for Conservation, dusan.maksimovic@cik.org.rs / mr. Maja Franković, viši konzervator, Centralni institut za konzervaciju, maja.frankovic@cik.org.rs, Dunja Davidović Gnjatović, viši konzervator-tehničar, Centralni institut za konzervaciju, dunja.davidovic@cik.org.rs, Dušan Maksimović, konzervator-tehničar, Centralni institut za konzervaciju, dusan.maksimovic@cik.org.rs

When a mosaic is lifted and dislocated, it starts to be considered as a movable object. The goal of its conservation-restoration is usually to enable presentation in museum conditions. To allow the planned use of a mosaic, a new support should provide structural stability and enable handling, while preserving the authenticity of the original material. Mosaic panels should be designed to satisfy these requirements, as well as to make possible the presentation of mosaic context within museum exhibition. For this, different technical solutions can be employed. Particular approaches for mosaic-support design and definition of mosaic panels are investigated through several examples of mosaics conserved-restored by the Central Institute for Conservation. A mosaic from the site of Guberevac, now at the National Museum in Belgrade, was restored on honeycomb panels with reversible synthetic mortar backing with the goal of presenting large surfaces of four different mosaic carpets from the same building. The objective was to design mosaic panels of particular sizes in order to enable handling in the museum environment. A mosaic from the Roman *villa urbana* that belongs to the public Institute of Museums and Galleries of Budva, Montenegro, was also restored on honeycomb panels, but with hydraulic lime backing mortar. The honeycomb panels had to be perfectly cut and closely fitted to enable joining of the mosaic panels without making the joints between them obvious, since the mosaic decoration was figural and the cuts between the fragments were not straight. A mosaic of the *Roman Municipium* Archaeological Museum, from the archaeological site of *Žadružni dom*, Skelani, is in the process of conservation-restoration. The mosaic fragments have their original backing mortar, and the goal of the conservation-restoration is to make mosaic panels suitable for handling and returning to the site without removing the original mortar.

Podizanjem i dislokacijom mozaik se počinje proučavati kao pokretni muzejski predmet. Cilj njegovog konzerviranja-restauriranja najčešće je prezentacija u muzejskim uvjetima. Da bi se omogućila planirana upotreba mozaika, nova podloga mora omogućiti strukturnu stabilnost i rukovanje a da se istovremeno očuva autentičnost originalnog materijala. Mozaički paneli trebaju biti kreirani tako da udovolje tim zahtjevima i da u muzejskim uvjetima omoguće prezentaciju konteksta iz kojega je mozaik premješten. U tu se svrhu mogu primijeniti različita tehnička rešenja. Specifični pristupi u kreiranju mozaičkih podloga razmatrani su na nekoliko primjera mozaika koji su konzervirani-restaurirani Centralni institut za konzervaciju. Mozaik s nalazišta Guberevac iz Narodnog muzeja u Beogradu restauriran je na aluminijskim sačastim panelima s međuslojem od sintetičke reverzibilne žbuke, u namjeri da se omogući izlaganje velikih površina četiriju mozaičkih tepiha koji potječu iz iste građevine. Svrha je bila da se kreiraju mozaički paneli odgovarajućih veličina, kako bi se omogućilo rukovanje u muzejskom okruženju. Mozaik iz rimske urbane vile (*villa urbana*), koji pripada JU Muzeji i galerije Budve u Crnoj Gori, također je restauriran na aluminijskim sačastim panelima, ali s međuslojem od hidrauličke vapnene žbuke. Sačasti paneli morali su biti precizno rezani i uklopljeni, kako spojevi između mozaičkih panela ne bi bili primjetni, jer je dekoracija mozaika figuralna, a spojevi između fragmenata nisu pravilni. Još traje konzerviranje-restauriranje mozaika s arheološkog nalazišta »Žadružni dom« u Skelanima, koji pripada Arheološkom muzeju *Rimski Municipium*. Fragmenti mozaika su na originalnoj podlozi od žbuke, a cilj konzerviranja-restauri-

ranja je oblikovanje mozaičkih panela pogodnih za rukovanje i vraćanje na nalazište bez uklanjanja originalne žbuke.



Picture 1. Mosaic from the archaeological site of Guberevac belonging to the collection of the National Museum in Belgrade at the exhibition "Constantine the Great". (Photo: Dušan Maksimović)

Slika 1. Mozaik s nalazišta Guberevac iz zbirke Narodnog muzeja u Beogradu na izložbi "Konstantin Veliki" (foto: Dušan Maksimović)

# Museum presentation of detached mosaics – treatment of *lacunae* / Prezentacija dislociranih mozaika u muzejima – tretman lakuna

Dunja Davidović Gnjatović, senior conservation technician, Central Institute for Conservation, [dunja.davidovic@cik.org.rs](mailto:dunja.davidovic@cik.org.rs), Maja Franković, MA, senior conservator, Central Institute for Conservation, [maja.frankovic@cik.org.rs](mailto:maja.frankovic@cik.org.rs), Dušan Maksimović, conservation technician, Central Institute for Conservation, [dusan.maksimovic@cik.org.rs](mailto:dusan.maksimovic@cik.org.rs) / Dunja Davidović Gnjatović, viši konzervator-tehničar, Centralni institut za konzervaciju, [dunja.davidovic@cik.org.rs](mailto:dunja.davidovic@cik.org.rs), mr. Maja Franković, viši konzervator, Centralni institut za konzervaciju, [maja.frankovic@cik.org.rs](mailto:maja.frankovic@cik.org.rs), Dušan Maksimović, konzervator-tehničar, Centralni institut za konzervaciju, [dusan.maksimovic@cik.org.rs](mailto:dusan.maksimovic@cik.org.rs)

The poster will present a case study of a mosaic in the collection of the National Museum in Belgrade. The mosaic was lifted in 1958 from a late Roman building on the site of the civil settlement of the castrum at Stojnik (the mining district of Kosmaj). The mosaic bears inscriptions of donors' names and titles, placed in hexagonal and octagonal fields, as well as a central rectangular one. It is dated to the mid-4th century AD. The level of preservation of the mosaic, as well as the reconstruction carried out in 1959, influenced the solution employed in the reintegration of *lacunae* that was applied in the re-conservation treatment. The poster presents the treatment of *lacunae* with coloured lime mortars that emphasize the geometric decoration patterns of the mosaic. This approach was chosen in order to allow comprehension of the mosaic's decorative scheme.

Posterom će biti predstavljena studija slučaja mozaika iz zbirke Narodnog muzeja u Beogradu. Mozaik je podignut 1958. godine iz kasnoantičke građevine u sklopu civilnog naselja rimskog kastruma u Stojniku (Kosmajsko rudarsko područje). Mozaik sadrži natpise – imena i titule priložnika, koji su smješteni u heksagonalna i oktagonalna polja i pravokutno središnje polje; datiran je u sredinu 4. stoljeća. Stupanj očuvanosti mozaika i rekonstrukcija izvedena 1959. godine, utjecali su na primijenjeno rješenje za reintegraciju lakuna u tretmanu ponovnog konzerviranja-restauriranja. Posterom je predstavljen tretman lakuna vapnenim žbukama u boji koje ističu geometrijsku dekoraciju mozaika. Tim izabranim pristupom omogućeno je razumijevanje geometrijskog crteža mozaika.



Picture 1. Mosaic carpet with hexagonal fields from the archaeological site of Guberevac (collection of the National Museum in Belgrade) before restoration. (Photo: Dušan Maksimović)

Slika 1. Mozaički tepih s heksagonalnim poljima s arheološkog lokaliteta Guberevac (iz zbirke Narodnog muzeja u Beogradu) prije restauracije (foto: Dušan Maksimović)

Picture 2. Mosaic carpet with hexagonal fields from the archaeological site of Guberevac (collection of the National Museum in Belgrade) after restoration. (Photo: Veljko Džikić)

Slika 2. Mozaički tepih s heksagonalnim poljima s arheološkog lokaliteta Guberevac (iz zbirke Narodnog muzeja u Beogradu) poslije restauracije (foto: Veljko Džikić)

# Conservation of mosaic fragments from the City Museum of Belgrade / Konzerviranje fragmenata mozaika iz Muzeja grada Beograda

Milena Jovanović, conservator, Central Institute for Conservation, milena.jovanovic@cik.org.rs, Dunja Davidović Gnjatović, senior conservation technician, Central Institute for Conservation, dunja.davidovic@cik.org.rs, Maja Franković, MA, senior conservator, Central Institute for Conservation, maja.frankovic@cik.org.rs / Milena Jovanović, konzervator, Centralni institut za konzervaciju, milena.jovanovic@cik.org.rs, Dunja Davidović Gnjatović, viši tehničar-konzervator, Centralni institut za konzervaciju, dunja.davidovic@cik.org.rs, mr. Maja Franković, viši konzervator, Centralni institut za konzervaciju, maja.frankovic@cik.org.rs

Mosaic fragments belonging to a Roman building dated to the 1st century were discovered during archaeological excavations conducted in 1976-1978 in the Belgrade city-centre street *Kosančićev venac*. The mosaic fragments, 122 in total, are the only remains of mosaic art found in Singidunum. Eighty-seven fragments are in *terazzo* technique, and 35 are *opus tessellatum* in black, white and red *tesserae*. An attempt to reconstruct the mosaic was made by Gordana Cvetković Tomašević, who published the findings in 1980. The fragments were stored in the City Museum of Belgrade, but to this day they have not been restored. The poster will present an effort to revise the proposed reconstruction, connecting the fragments to larger panels, and the proposal for their presentation in the museum.

U arheološkim iskopavanjima koja su trajala od 1976. do 1978. godine u središtu Beograda, u ulici *Kosančićev venac*, otkriveni su fragmenti podnog rimskog mozaika; datirani su u 1. stoljeće. Ukupno 122 mozaička fragmenta jedini su ostaci mozaika pronađenoga u Singidunumu. Osamdeset sedam fragmenata izrađeno je u *terazzo* tehnici, a 35 u tehnici *opus tessellatum*. Kamen korišten za izradu tesera je crne, bijele i crvene boje. Mozaik je pokušala rekonstruirati Gordana Cvetković Tomašević koja je objavila nalaze 1980. godine. Fragmenti su nakon iskopavanja uskladišteni u Muzeju grada Beograda, ali do danas nisu restaurirani. Plakatom se predstavlja prijedlog za rekonstrukciju povezivanja fragmenata na većim panelima i prijedlog njihove prezentacije u muzeju.



Picture 1. Mosaic fragments. (Photo: Milena Jovanović)

Slika 1. Fragmenti mozaika (foto: Milena Jovanović)

# Conservation-restoration of Roman mosaics from *villa urbana*, Budva - International project / Konzerviranje-restauriranje rimskog mozaika iz urbane vile (*villa urbana*) u Budvi - projekt međunarodne suradnje

Dušan Maksimović, conservation technician, Central Institute for Conservation, [dusan.maksimovic@cik.org.rs](mailto:dusan.maksimovic@cik.org.rs), Maja Franković, MA, senior conservator, Central Institute for Conservation, [maja.frankovic@cik.org.rs](mailto:maja.frankovic@cik.org.rs), Dunja Davidović Gnjatović, senior conservation technician, Central Institute for Conservation, [dunja.davidovic@cik.org.rs](mailto:dunja.davidovic@cik.org.rs) / Dušan Maksimović, konzervator-tehničar, Centralni institut za konzervaciju, [dusan.maksimovic@cik.org.rs](mailto:dusan.maksimovic@cik.org.rs), mr. Maja Franković, viši konzervator, Centralni institut za konzervaciju, [maja.frankovic@cik.org.rs](mailto:maja.frankovic@cik.org.rs), Dunja Davidović Gnjatović, viši konzervator-tehničar, Centralni institut za konzervaciju, [dunja.davidovic@cik.org.rs](mailto:dunja.davidovic@cik.org.rs)

The poster will present an international project: conservation-restoration of an antique mosaic from the collection of the Public Institute of Museums and Galleries of Budva, Montenegro, carried out from March to August 2014. The mosaic was discovered at the end of the 1930s, during construction work on the *Avala* hotel. It belongs to the Roman *villa urbana*, which is believed to date back to the 2<sup>nd</sup> century AD. The first conservation-restoration work on the mosaic was done in 1986. At the time, fragments of the mosaic were displaced from the site, placed on wooden panels and stored. Twenty-eight years after its lifting and displacement, for the first time since its discovery, approximately 40m<sup>2</sup> of the mosaic were conserved on movable supports made of hydraulic lime mortar, synthetic epoxy mortar and aluminium honeycomb panels. The project was a joint effort by the Centre for Conservation and Archaeology of Montenegro (Cetinje, Montenegro), the Central Institute for Conservation in Belgrade (Belgrade, Serbia), the Republic Institute for the Protection of Cultural Monuments (Belgrade, Serbia) and the Public Institute of Museums and Galleries of Budva (Budva, Montenegro).

Poster će predstaviti međunarodni projekt konzerviranja-restauriranja antičkog mozaika iz zbirke Javne ustanove Muzeji i galerije Budve, koji je trajao od ožujka do kolovoza 2014. godine. Mozaik je otkriven potkraj tridesetih godina 20. stoljeća, tijekom gradnje starog hotela Avala. Pripadao je rimskoj urbanoj vili (*villa urbana*) koja se datira u drugo stoljeće. Prvi radovi na konzerviranju-restauriranju toga mozaika izvedeni su 1986. godine. Tada je mozaik u fragmentima podignut s nalazišta, postavljen na drvene panel-ploče i uskladišten. Dvadeset osam godina nakon njegova podizanja i premještanja, prvi put nakon otkrivanja, konzervatorsko-restauratorski radovi izvedeni su na oko 40 m<sup>2</sup> mozaika na podlozi od hidraulične vapnene žbuke, sintetičke epoksidne žbuke i aluminijskih sačastih panela. Projekt su zajednički ostvarili Centar za konzervaciju i arheologiju Crne Gore - Cetinje, Centralni institut za konzervaciju u Beogradu, Srbija, Republički zavod za zaštitu spomenika kulture - Beograd, Srbija i Javna ustanova Muzeji i galerije Budve - Budva, Crna Gora.

Picture 1. Central part of the mosaic after conservation-restoration. (Photo: Dušan Maksimović)

Slika 1. Središnji dio mozaika nakon završetka konzervatorsko-restauratorskih radova (foto: Dušan Maksimović)



# Conservation-restoration of modern ceramic mosaics from an elementary school in Obrenovac / Konzerviranje-restauriranje suvremenog keramičkog mozaika iz osnovne škole u Obrenovcu

Marijana Protić, painter-restorer, consultant, Institute for the Protection of the Cultural Heritage of Serbia, malinana@live.com, Nemanja Smičiklas, painter-restorer, consultant, Institute for the Protection of the Cultural Heritage of Serbia, dontpanicdesign@gmail.com / Marijana Protić, slikar restaurator, savjetnik, Republički zavod za zaštitu spomenika kulture Srbije, malinana@live.com, Nemanja Smičiklas, slikar restaurator, savjetnik, Republički zavod za zaštitu spomenika kulture Srbije, dontpanicdesign@gmail.com

This poster shows the conservation-restoration process of the 18 m<sup>2</sup> of a ceramic mosaic exhibited on the walls of an elementary school in Obrenovac, near Belgrade, as well as problems and solutions relating to its presentation, since it is a modern work of art. The mosaic was devastated in floods that shook Serbia in 2014 and completely destroyed Obrenovac. This job was part of the humanitarian work that the Institute for the Protection of the Cultural Heritage of Serbia did after the flood. The creator of this work of art is the well-known artist Ljubiša Petrović. This mosaic is a symbol of this school, and since 1979 (the year it went up on the school walls) it has given warmth to the entrance hall. Every generation of pupils, on all important occasions in the course of their education, has been photographed in front of this mosaic.

Ovaj poster predstavlja konzervatorsko-restauratorske radove na 18 m<sup>2</sup> keramičkog mozaika izloženog na zidovima osnovne škole u Obrenovcu kod Beograda, kao i problem i rješenja koja se odnose na njegovu prezentaciju, s obzirom na to da je riječ o modernom umjetničkom djelu. Mozaik je bio devastiran u poplavama koje su zadesile Srbiju u svibnju 2014. i potpuno uništile Obrenovac. Konzerviranje-restauriranje mozaika dio je humanitarnog programa Republičkoga zavoda za zaštitu spomenika kulture. Autor keramičkog mozaika je akademski umjetnik Ljubiša Petrović. Mozaik je simbol škole i još od 1979. (kad je postavljen na zid) daje toplinu ambijentu glavnog predvorja. Ispred mozaika fotografirale su se za svojega školovanja sve generacije učenika.



Picture 1. Main mosaic after conservation-restoration. (Photo: Nemanja Smičiklas)

Slika 1. Glavni mozaik nakon završetka radova (foto: Nemanja Smičiklas)

# Proper selection of methodology works on two different areas of the archaeological park of St. Simon's Bay (*Simonov Zaliv*) / Odabir odgovarajuće metodologije rada na dva područja arheološkog parka Simonov zaljev (*Simonov zaliv*)

Martina Lesar Kikelj, MA, conservator-restorer, Restoration Centre, Institute for the Protection of the Cultural Heritage of Slovenia, [martina.kikelj@rescen.si](mailto:martina.kikelj@rescen.si), Nataša Škrjanec, independent restorer, [natasa.skrjanec@gmail.com](mailto:natasa.skrjanec@gmail.com) / mr. art. Martina Lesar Kikelj, konzervator-restaurator, Restauratorski centar, Zavod za zaštitu kulturne baštine Slovenije, [martina.kikelj@rescen.si](mailto:martina.kikelj@rescen.si), Nataša Škrjanec, samostalni konzervator-restaurator, [natasa.skrjanec@gmail.com](mailto:natasa.skrjanec@gmail.com)

The content of the poster discusses the various final solutions in two areas of the archaeological park, with a large number of mosaics. In 2015-2016 the Restoration Centre of the Institute for the Protection of the Cultural Heritage of Slovenia carried out extensive conservation-restoration work on the mosaics and wall structures of the Roman seaside villa at St. Simon's Bay, in Izola. The work was completed within the project *AS – Archaeology for all. Revival of the Archaeological Park of St. Simon's Bay*.

Before the project started, we anticipated 5 different possibilities for conservation-restoration intervention on the mosaics. We chose the most appropriate method for a particular object depending on the unequal geological settings of the two areas, the height of the mosaics above sea level, and negative external factors, due to which maintenance was provided, comprising the functioning of a drainage system and appropriate shelter. The mosaics in area 1 were consolidated and partially restored *in situ*, since the sub-ground there consists of limestone, being permeable and strong enough to resist negative external factors. The remains of the seaside villa in area 2 are located on flysch ground. Due to soil subsidence and sea-level rise since Roman times, the mosaic level has nowadays reached a very low, critical altitude. The influence of the tides is therefore stronger, while the impermeable clay layers in the sub-ground lead to retention of rain and groundwater, causing deterioration of the preparatory mortar layers of the mosaics. Hence, in this area the mosaics were lifted, straightened, conserved and returned to their original location and primary level, on newly constructed preparatory layers combined with a drainage system. The new base was executed following the example of the original ancient one. For mosaic presentation purposes, the

Poster donosi raspravu o različitim konačnim rješenjima na dva područja arheološkog parka s većim brojem mozaika. Djelatnici Restauratorskog centra Zavoda za zaštitu kulturne baštine Slovenije 2015. i 2016. godine izveli su opsežne konzervatorsko-restauratorske radove na mozaicima i zidovima rimskog ljetnikovca u Simonovu zaljevu u Izoli. Radovi su izvedeni u sklopu projekta „AS - arheologija za sve. Oživljavanje Arheološkog parka Simonov zaljev“. Prije početka projekta predviđeno je pet mogućih konzervatorsko-restauratorskih intervencija na mozaicima. Izabrana je najprimjerenija metoda za svaki objekt, s obzirom na nejednaki geološki sastav dvaju područja, nadmorsku visinu mozaika i negativne vanjske čimbenike, zbog kojih je bilo potrebno održavanje koje je uključivalo postavljanje odvodnog sustava i primjeren zaklon. Mozaici na Području 1 bili su konzervirani-restaurirani i djelomično obnovljeni *in situ* jer vapnena podloga ne zadržava vodu, dovoljno je čvrsta i otporna na negativne vanjske čimbenike. Ostaci ljetnikovca na Području 2 nalaze se na flišnom tlu. Zbog slijeganja tla i porasta razine mora od rimskih vremena do danas, razina mozaika je vrlo niska. Zato na njega plima jače utječe, a nepropusni slojevi gline uzrokuju zadržavanje oborinskih i površinskih voda zbog čega pripremni slojevi žbuke mozaika slabe. Odlučeno je da se mozaici podignu, poravnaju, konzerviraju-restauriraju i vrate na izvornu lokaciju na novoj podlozi u razini izvorne visine mozaika, s ugrađenim drenažnim sustavom. Nova je podloga izrađena po uzoru na izvorne antičke podloge. Za potrebe prezentacije mozaika ispitana su mehanička i fizička svojstva žbuke na NHL osnovi s različitim mineralnim dodacima, a prućena je i njihova otpornost na smrzavanje.

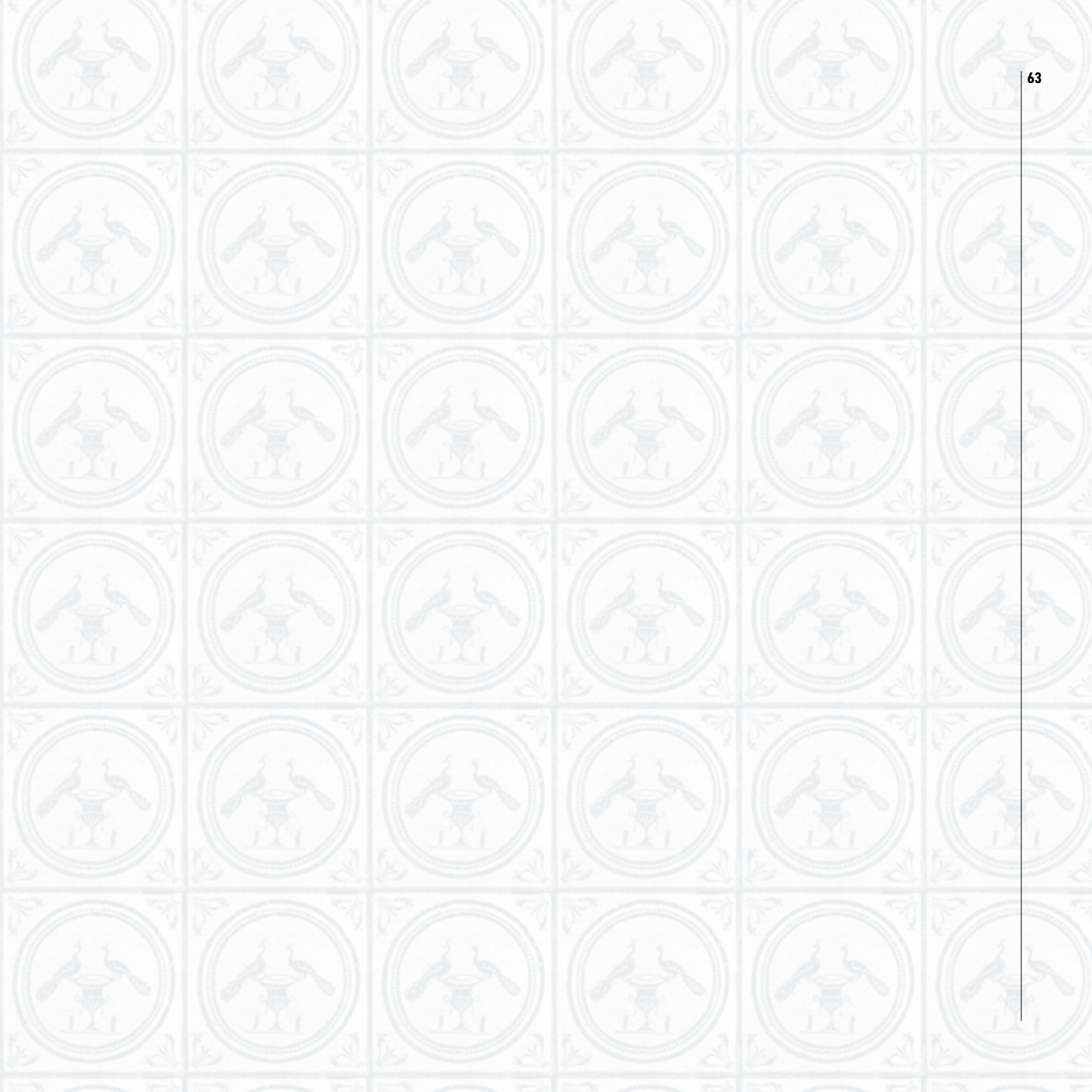
mechanical and physical properties of mortars based on NHL with various mineral additives were also investigated, as well as their frostresistance.



Picture 1. The shelter over area 2, with three returned mosaics. (Photo: Nataša Škrjanec)

Slika 1. Zaštitna iznad Područja 2, s tri ponovno postavljena mozaika (foto: Nataša Škrjanec)

# Notes / Bilješke



# Impressum / Impresum

4th SEE Mosaics Conference „Presentation of Detached Mosaics on Movable Supports“

Book of Abstracts

Pula, Croatia, 3rd-6th October 2017

IV. Savjetovanje *SEE Mosaics* „Prezentacija demontiranih mozaika na pokretnim podlogama“

Knjiga sažetaka

Pula, Hrvatska, 3. - 6. listopada 2017.

Organized by / Organizator: Croatian Conservation Institute / Hrvatski restauratorski zavod

Supported by / Potpora: Central European Initiative (CEI)

Partners / Partneri: Archaeological Museum of Istria / Arheološki muzej Istre, Croatian Chamber of

Commerce – Regional Chamber Pula / Hrvatska Gospodarska komora - Županijska komora Pula, Central

Institute for Conservation in Belgrade / Centralni institut za konzervaciju u Beogradu

On behalf of the organizers / Za organizatore:

dr. sc. Tajana Pleše

Director of the Croatian Conservation Institute / Ravnateljica Hrvatskog restauratorskog zavoda

Authors of the concept / Autori koncepta:

Mihaela Klarić

Toni Šaina

Organizing Committee / Organizacijski odbor: dr. sc. Tajana Pleše, Mihaela Klarić, Toni Šaina, Darko Komšo,

mr. Maja Franković, Branislava Lazarević Tošović, Jasna Jaklin Majetić

Program Committee / Programski odbor: dr. sc. Tajana Pleše, Mihaela Klarić, Toni Šaina, Đeni Gobić-

Bravar, mr. Maja Franković, Branislava Lazarević Tošović, Nikola Upevche, prof. dr. sc. Branko Matulić

Expert Associates / Stručni suradnici: dr. sc. Tonči Borovac, mr. art. Antonija Gluhan

Visual Identity / Vizualni identitet: Ljubo Gamulin

Translation / Prijevod: Danijel Lončar

Proofreading / Lektura: Rosanda Tometić i Andy Tomlinson

Printed by / Tisak: Novi val d.o.o.