

PERSONAL INFORMATION**Ioana Maria CORTEA**

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 ResearchGate: <https://www.researchgate.net/profile/Ioana-Cortea>

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Linkedin: <https://www.linkedin.com/in/ioana-cortea>

Date of birth 10 Feb 1986 | Nationality Romanian

WORK EXPERIENCE

2015 - present

Research Scientist

National Institute for Research and Development in Optoelectronics, Department of Optoelectronic Methods and Techniques for Artwork Restoration and Conservation

409 Atomistilor St., Magurele, Ilfov, Romania

<http://certo.inoe.ro/>

- material characterization and identification in multi-layered works of art, investigation of aged paint layers, spectroscopic data analysis, data fusion and multivariate analysis
- elaboration of scientific papers and technical documentation
- elaboration of research projects and studies

Business or sector Research / Conservation and Heritage Science

2012 - 2015

Research Assistant

National Institute for Research and Development in Optoelectronics, Department of Optoelectronic Methods and Techniques for Artwork Restoration and Conservation

409 Atomistilor St., Magurele, Ilfov, Romania

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- analytical characterization of fine art and archaeological objects via spectroscopic techniques
- elaboration of scientific papers and technical documentation

Business or sector Research / Conservation and Heritage Science

EDUCATION AND TRAINING

2022-2024

MA in History and Philosophy of Art

EQF level: 7

University of Bucharest, Faculty of History

Area field Interdisciplinary: Art History and Philosophy of Culture

2012-2017

PhD in Physics

EQF level: 8

University Politehnica of Bucharest, Faculty of Applied Sciences

Area field Applied Physics, Heritage Science

2010-2012

MA in Conservation Science and Technology for Cultural Heritage

EQF level: 7

University of Bucharest, Faculty of Physics

Area field Interdisciplinary: Applied Sciences, Cultural Heritage

2005-2009

BS in Engineering Physics

EQF level: 6

Babeş-Bolyai University, Faculty of Physics

Area field Applied Engineering

PERSONAL SKILLS

Mother tongue	Romanian
Other language(s)	English (advanced), Italian / French (beginner)
Personal skills	organized, reliable, fast-learner, good team-worker, passionate, creative
Digital skills	<ul style="list-style-type: none"> MS Office graphic design (Adobe Creative Suite) advanced data processing and modelling (Origin, Igor Pro, Unscrambler X, ENVI)
Job-related skills	Advanced skills on the analysis of paintings and painting materials, and the study of historical art objects using non-destructive spectroscopic techniques (FTIR, Raman, XRF)
Managerial skills	<ul style="list-style-type: none"> project management (principal investigator and key person in several research projects)
Special permits	CNCAN Level 1 practice permit for activities involving low radiological risk

ADDITIONAL INFORMATION

Certifications	Research Data Management (2023) Research Design (2022) Innovation Management (2022) Project Management (2021) Peer Reviewer Certificate (2021) Entrepreneurial Management (2018) Data Science Ethics (2017) Certified Microsoft Innovative Educator (2017) Certified Trainer (2015)
Courses	2023 Sample Preparation and Manipulation for Microanalysis (McCrone Research Institute) 2022 Multivariate Analysis of Hyperspectral Images (AspenTech Training) 2020 Multivariate Analysis of Spectroscopic Data (Camo Analytics Training) 2018 Introduction to ENVI Analytics (Romania) 2016 Interpretation of Infrared and Raman Spectra (UK) 2015 Laser Technologies in Cultural Heritage Analysis, Diagnosis and Conservation (Greece) 2014 X-ray Fluorescence Spectroscopy and Elemental Analysis (Romania) 2014 Radiation Protection and Safety of Radiation Sources (Romania)
Honours and awards	<ul style="list-style-type: none"> Gold medal at EUROINVENT 2023 2nd Prize Best Poster Presentation, Lasers in the Conservation of Artworks, Florence (2022) Silver medal at EUROINVENT 2022 Gold medal and Certificate of Excellence at PRO INVENT 2020 3rd Prize Best Poster Presentation, Lasers in the Conservation of Artworks, Paris (2018) Gold medal at INVENTICA 2018
Memberships	International Institute for Conservation of Historic and Artistic Works (IIC), Art Crime Project, Europeana Network Association, Research Data Alliance, Romanian Physical Society (RPS), Society for Applied Spectroscopy (SAS), The Coblenz Society, EuroScience
Peer reviewer	Journal of Cultural Heritage (Elsevier), Heritage Science (Springer), Scientific Reports (Nature), Applied Sciences (MDPI), Minerals (MDPI), Heritage (MDPI)
Academic editor	Guest Editor of Special Issue within the journal <i>Heritage</i> (MDPI) Guest Editor of Special Issue within the journal <i>Minerals</i> (MDPI)
Scientific indicators	Papers in WoS indexed journals with Impact Factor (ICR): 24 Papers in WoS indexed Conference Proceedings/Journals (without Impact Factor): 9 Chapters in monographs/books: 5 Presentations within international conferences: 21 Research grants (as principal investigator): 2

Publications
(selected works)

Articles in WoS indexed journals with Impact Factor

- I.M. Cortea, A. Chiroșca, L.M. Angheluță, G. Serișan (2023). INFRA-ART: An open access spectral library of art-related materials as a digital support tool for cultural heritage science, in *Journal on Computing and Cultural Heritage* 16(2), 40. [Journal IF: 2.047 | AIS Q1]
- L. Ghervase, I.M. Cortea (2023) Lighting up the heritage sciences: the past and future of laser-induced fluorescence spectroscopy in the field of cultural goods, in *Chemosensors* 11(2), 100. [Journal IF: 4.229 | AIS Q2]
- I.M. Cortea, L. Ghervase, R. Rădvan, G. Serișan (2022). Assessment of easily accessible spectroscopic techniques coupled with multivariate analysis for the qualitative characterization and differentiation of earth pigments of various provenance, in *Minerlas*, 12(6), 755. [Journal IF: 2.644 | AIS Q2]
- I.M. Cortea, L. Ratoiu, A. Chelmuș, T. Mureșan (2022). Unveiling the original layers and color palette of 18th century overpainted Transylvanian icons by combined X-ray radiography, hyperspectral imaging and spectroscopic spot analysis, in *X-Ray Spectrometry*, 51(1), 26-42. [Journal IF: 1.488 | AIS Q3]
- I.M. Cortea, L. Ratoiu, L. Ghervase, O. Țentea, M. Dinu (2021). Investigation of ancient wall painting fragments discovered in the Roman baths from Alburnus Maior by complementary non-destructive techniques, in *Applied Sciences*, 11, 10049. [Journal IF: 2.679 | AIS Q3]
- I.M. Cortea, L. Ratoiu, R. Rădvan (2021). Characterization of spray paints used in street art graffiti by a non-destructive multi-analytical approach, in *Color Research and Application*, 46(1), 183-194. [Journal IF: 1.3 | AIS Q3]
- I.M. Cortea, L. Ghervase, L. Ratoiu, R. Rădvan (2020). Application of spectroscopic and hyperspectral imaging techniques for rapid and non-destructive investigation of Jewish ritual parchment, in *Frontiers in Materials*, 7, 601339. [Journal IF: 3.515 | AIS Q2]
- L. Ghervase, M. Dinu, C. Borș, L.M. Angheluță, R. Rădvan, I.M. Cortea (2020). Investigation on metal adornments from ancient Eastern Europe, in *Frontiers in Materials*, 7, 600913. [Journal IF: 3.515 | AIS Q2]
- I.M. Cortea, L. Ghervase, L. Ratoiu, M. Dinu, R. Rădvan (2020). Uncovering hidden jewels: an investigation of the pictorial layers of an 18th-century Taskin harpsichord, in *Heritage Science*, 8, 55. [Journal IF: 1.902 | AIS Q2]
- I. Huică, I.M. Cortea, L. Ratoiu, L. Ghervase, R. Rădvan, D. Mohanu (2020). Multidisciplinary approach for time-framing of an overpainted wooden iconostasis from Southern Romania, in *Microchemical Journal*, 155, 104685. [Journal IF: 4.821 | AIS Q2]
- V.L. Tobisch, I.M. Cortea, L. Ratoiu, R. Rădvan, W. Kautek (2020). Physical-chemical characterization of electrodeposited printing plates from the early 1840 in Vienna, in *Microchemical Journal*, 152, 104320. [Journal IF: 4.821 | AIS Q2]
- I.M. Cortea, L. Ghervase, O. Țentea, A.C. Pârâu, R. Rădvan (2020). First Analytical Study on 2nd Century Wall Paintings from Ulpia Traiana Sarmizegetusa: Insights on the Materials and Painting Technique, in *International Journal of Architectural Heritage*, 14(5), 751-761. [Journal IF: 2.580 | AIS Q2]
- L. Ghervase, I.M. Cortea, R. Rădvan, L. Ratoiu, A. Chelmuș (2018). Complementary investigations of two Lipovan-style icons, in *Microchemical Journal*, 138, 509-518. [Journal IF: 3.206 | AIS Q2]
- L. Ghervase, I.M. Cortea, R. Rădvan, C. Borș (2018). Non-destructive spectroscopic investigation of artefacts from middle Hallstatt period – case study of a stone bead from Tărtăria I Hoard, Romania, in *Archaeological and Anthropological Sciences*, 10(8), 1841-1849. [Journal IF: 1.978 | AIS Q1]

Conference proceedings (indexed in WoS)

- I.M. Cortea, A. Chiroșca, L.M. Angheluță, G. Seritan (2023). INFRA-ART spectral library: a new open access infrastructure for heritage science. Lasers in the Conservation of Artworks XIII. Proceedings of the International Conference on Lasers in the Conservation of Artworks XIII (LACONA XIII), 12-16 September 2022, Florence, Italy. S. Siano, D. Ciofini, Eds.; CRC Press, pp. 37-47.
- I.M. Cortea, L. Ratoiu, R. Rădvan (2023). Non-destructive investigation of a late panel painting by Lucas Cranach the Elder. Lasers in the Conservation of Artworks XIII. Proceedings of the International Conference on Lasers in the Conservation of Artworks XIII (LACONA XIII), 12-16 September 2022, Florence, Italy. S. Siano, D. Ciofini, Eds.; CRC Press, pp. 22-30.
- A. Gómez-Moron, P. Ortiz, R. Ortiz, J. Becerra, R. Gómez-Cañada, R. Rădvan, A. Chelmuș, L. Ratoiu, L. Ghervase, I.M. Cortea, C. Constantin, L. Angheluță (2020). Non-destructive techniques applied to in situ study of Maqsura at Cordoba cathedral (Spain). In Science and Digital Technology for Cultural Heritage - Interdisciplinary Approach to Diagnosis, Vulnerability, Risk Assessment and Graphic Information Models - Proceedings of the 4th International Congress Science and Technology for the Conservation of Cultural Heritage, TECHNOHERITAGE 2019, (CRC Press), pp. 338–342.
- A. Tirado-Hernández, J. Becerra, R. Ortiz, P. Ortiz, A. Gómez-Morón, L. Ghervase, I.M. Cortea, A. Chelmuș, R. Rădvan (2020). In situ study by XRF and LDV of mural paintings in Magdalena church (Seville, Spain). In Science and Digital Technology for Cultural Heritage - Interdisciplinary Approach to Diagnosis, Vulnerability, Risk Assessment and Graphic Information Models - Proceedings of the 4th International Congress Science and Technology for the Conservation of Cultural Heritage, TECHNOHERITAGE 2019, (CRC Press), pp. 343–347.
- R. Rădvan, L. Ratoiu, I.M. Cortea, A. Chelmuș, L. Angheluță, D. Marinescu (2018). Multi-step approach for characterization of artworks based on hyperspectral imaging and complementary techniques, in Proceedings of the 11th International Conference on Developments in eSystems Engineering (DeSE), 2-5 Sep 2018, Cambridge, UK, CPS, pp. 117-122.
- I.M. Cortea, L. Ghervase, M. Dumbrăviciu (2015). Combined spectroscopic analysis for identification of mural paintings materials, in Proceedings of the 22nd International Conference on Systems, Signals and Image Processing, P. Liatsis, A. Uus, S. Miah (eds.), Published by Department of Electrical and Electronic Engineering, City University London, Northampton Square, London, UK, pp. 329-332.

Books and chapters

- I.M. Cortea, L. Ghervase, L.M. Angheluță, A.I. Chelmuș, M. Dinu, L.C. Ratoiu, Expunerea unei cazuistici variate. Investigarea prin metode și tehnici complementare, în A fi, sau a nu fi? Științele patrimoniului despre fals și autentic, ed. L.C. Ratoiu, Ed. Top Form, 2020, pp. 21-76. (ISBN: 978-606-080-003-3)
- I.M. Cortea, Investiții de tip FTIR: aplicații în arheologie, în Meșteșug și prestigiu: depozitele hallstatiene de obiecte din bronz și fier de la Tărtăria. Documentarea unei colecții, eds. C. Borș, R. Rădvan, Editura Istros a Muzeului Brăilei "Carol I", vol. 1, 2019, pp. 80-83. (ISBN 978-606-654-337-8)
- I.M. Cortea, Problematice ale materialelor polimerice utilizate în practicile curente de conservare/restaurare. Aspecte fizico-chimice, în Imagini contemporane în atelier, Practici artistice și științifice, vol. II, ed. R. Demetrescu, Editura UNARTE, București, 2016, pp. 98-113. (ISBN:978-606-720-070-6)
- M. Simileanu, D.V. Ene, L. Ratoiu, I.M. Cortea (2014). Aspects of the scientific investigations, in For Tomorrow: Investigating New Materials in the Works of Alexandru Rădvan, eds. R. Demetrescu, D. Dochia and R. Rădvan, Archetype Publications Ltd, United Kingdom, 2014, pp. 123-133. (ISBN:978-1909492110)

Conferences (selected works)

- Detectability of ancient organic compounds in various archaeological artefacts via combined non- and minimally-invasive mobile spectroscopic techniques. Colloquium Spectroscopicum Internationale XLIII (CSI XLIII), 26-30 June 2023, Tokushima, Japan.
- A minimally-invasive multimethod approach for the study of paint-layer stratigraphy in some 2nd century polychrome murals. The 5th Asian Symposium on Laser Induced Breakdown Spectroscopy (ASLIBS 2023), 26-30 June 2023, Tokushima, Japan.
- INFRA-ART Spectral Library: a new open access infrastructure for heritage science. 8th International Conference on Analytical Techniques in Art and Cultural Heritage (TECHNART 2023), 7-12 May 2023, Lisbon
- Abundance of colors: pigments and wall painting techniques at the frontiers of the Roman Empire. 8th International Conference on Analytical Techniques in Art and Cultural Heritage (TECHNART 2023), 7-12 May 2023, Lisbon.
- A new open access spectral library of art-related materials as a digital support tool for cultural heritage science, Lasers in the Conservation of Artworks (LACONA XIII), 12-16 Sep 2022, Florența. – **2nd Prize Best Poster Presentation**
- New insights into the materials and painting technique of ancient wall paintings from the Roman province of Dacia: an integrated multi-analytical study. 5th International Conference on Innovation in Art Research and Technology (inART 2022), 28 Jun - 1 Jul 2022, Paris.
- Advanced analytical investigation of ancient wall-painting fragments discovered in the Roman Baths from Alburnus Maior. 11th International Conference on Advanced Vibrational Spectroscopy (ICAVS 11), 23-26 Aug 2021, online.
- An integrated non-destructive approach for exploring the color palette and painting techniques of Lucas Cranach the Elder. Colloquium Spectroscopicum Internationale XLI (CSI XLI), 9-14 Jun 2019, Mexico City.
- Progress and challenges in the analysis of modern paint layers: non-invasive characterization of complex mixtures by combined spectroscopy techniques and chemometrics. Lasers in the Conservation of Artworks (LACONA XII), 10-14 Sep 2018, Paris. – **3rd Prize Best Poster Presentation**
- In situ characterization of the pictorial layers of an original 1772 Pascal Taskin harpsichord. Colloquium Spectroscopicum Internationale XL (CSI XL), 11-16 iunie 2017, Pisa.

Research grants (as principal investigator)

2022-2024: **Experimental Demonstration Project:** Innovative analytical methodology for in-situ identification and real-time mapping of organic binders used in ancient wall paintings ([artMAP](#)), grant no. PN-III-P2-2.1-PED-2021-3576, total funding: EUR 120,000.

2020-2022: **Postdoctoral Research Project:** Spectral data mining for material identification, chemical fingerprinting and forgery detection of painted works of art ([INFRA-ART](#)), grant no. PN-III-P1-1.1-PD-2019-1099, total funding: EUR 50,000.

Product development

[INFRA-ART Spectral Library](#) – open access integrated spectral library of artist paint materials

On-site investigations

(2021) The mural painting "Istoria comerțului românesc" by Cecilia Cuțescu Storck found within the Aula Magna hall of the Academy of Economic Studies in Bucharest; (2015-2019) The Sculptural Ensemble of Constantin Brâncuși in Târgu-Jiu, Romania; (2018) The European painting collection of the National Museum of Art of Romania; (2017) 19th century wooden church from Șirineasa, Vâlcea county, Romania; (2016) The Mosque–Cathedral of Córdoba, Spain (10th century, UNESCO World Heritage Site); (2016) Church of Omnium Sanctorum from Seville, Spain (13th century); (2016) Gothic Door of the Apostles (14th century) of the church of Santa Maria la Mayor, Morella, Castellon province, Spain; (2015) Taskin Pascal original Harpsichord (1771), Peleş National Museum, Sinaia, Romania; (2015) Byzantine church of Panagia (11th century), Fodele, Crete, Greece; (2014) Saint Stephen's Church in Nessebar, Bulgaria (11th-13th century, UNESCO World Heritage Site); (2013) Laser cleaning campaign: Martyrs' Monument from Moisei, Maramureș, Romania.