

LIST OF SCIENTIFIC PUBLICATIONS

► Doctoral thesis, published as a book:

Ordered Plasmonic Nanostructures: from Fabrication to Relevant Applications in Optical Spectroscopy and Sensing, GRIN Publishing GmbH Munich, ISBN (eBook) 978-3-656-91121-0; ISBN (Book) 978-3-656-91122-7.

► Book chapters

C. Farcau, S. Astilean, *Surface Enhanced Raman Scattering: Fundamentals and Biosensing Applications*, capitol in *Handbook on Enhanced Spectroscopies*, (Eds. Pietro Gucciardi, Nathalie Lidgi, Marc Lamy de la Chapelle), Pan Stanford Publishing, 2015, ISBN 9789814613323. ([WoS](#))

M. Potara, C. Farcau, I. Botiz, S. Astilean, *Detection of environmental pollutants by surface-enhanced Raman spectroscopy*, capitol in *Advanced Environmental Analysis: Applications of Nanomaterials*, Eds. ChaudheryMustansar Hussain and Boris Kharisov, Book Series: RSC Detection Science Series, Volume9, Page479-503. Royal Society of Chemistry 2017, Print ISBN: 978-1- 78262-144-7; ISSN2052-3068. ([WoS](#), [Article](#); [Book Chapter](#))

► Articles in WoS-indexed, IF-journals

1. [C. Farcau](#), *Linear Arrays of Metal-Coated Microspheres: a Polarization –Sensitive Hybrid Colloidal Plasmonic-Photonic Crystal*, **Eur. Phys. J. Plus** **2023**, **138**, 1000.
2. A.-S. Tatar, S. Boca, A. Falamas, D. Cuibus, [C. Farcau](#), *Self-Assembled PVP-Gold Nanostar Films as Plasmonic Substrates for Surface-Enhanced Spectroscopies: Influence of the Polymeric Coating on the Enhancement Efficiency*, **Analyst** **2023**, **148**, 3992. **Promoted as journal cover.**
3. C. M. Muntean, D. Cuibus, S. Boca, A. Fălămaș, N. Toșa, I. Brezeștean, A. Bende, L. Barbu-Tudoran, R. Moldovan, E. Bodoki, [C. Farcău](#), *Gold vs silver colloidal nanoparticle films for optimized SERS detection of propranolol and electrochemical-SERS analyses*, **Biosensors** **2023**, **13**, 530.
4. A. Falamas, D. Cuibus, N. Tosa, I. Brezestean, C. M. Muntean, K. Milenko, E. Vereshchagina, R. Moldovan, E. Bodoki, [C. Farcau](#), *Toward microfluidic SERS and EC-SERS applications via tunable gold films over nanospheres*, **Discover Nano** **2023**, **18**, 73.

5. I. Marica, M. Ștefan, S. Boca, A. Falamaș, C. Farcău, *A simple approach for coffee-ring suppression yielding homogeneous drying patterns of ZnO and TiO₂ nanoparticles*, **J. Colloid Interface Sci.** **2023**, *635*, 117.
6. A. Falamas, I. Marica, F. Nekvapil, M. Stefan, G. S. Macavei, L. Barbu-Tudoran, C. Farcau, *Surface enhanced fluorescence potential of ZnO nanoparticles and gold decorated ZnO nanostructures embedded in a polyvinyl alcohol matrix*, **J. Photochem. Photobiol. A** **2023**, *438*, 114516.
7. R. Moldovan, K. Milenko, E. Vereshchagina, B.-C. Iacob, K. Schneider, C. Farcău, E. Bodoki, *EC-SERS Detection of Thiabendazole in Apple Juice Using Activated Screen-Printed Electrodes*, **Food Chem.** **2023**, *405*, 134713.
8. R. Tarcan, M. Handrea-Dragan, C.-I. Leordean, R. C. Cioban, Z. Kiss, D. Zaharie-Butucel, C. Farcau, A. Vulpoi, S. Simon, I. Botiz, *Development of PMMA/RGO Composite Films as Thermal Interface Materials*, **J. Appl. Polym. Sci.** **2022**, *139*, e53238.
9. I. Brezestean, N. Tosa, A. Falamas, D. Cuibus, C. M. Muntean, A. Bende, B. Cozar, C. Berghian-Grosan, C. Farcau, *Silver nanoparticle films obtained by convective self-assembly for surface-enhanced Raman spectroscopy analyses of the pesticides thiabendazole and endosulfan*, **Front. Chem.** **2022**, *10*, 915337.
10. I. Marica, F. Nekvapil, M. Ștefan, C. Farcău, A. Falamaș, *Zinc oxide nanostructures for fluorescence and Raman signal enhancement: a review*, **Beilstein J. Nanotechnol.** **2022**, *13*, 472.
11. R. Moldovan, E. Vereshchagina, K. Milenko, B.-C. Iacob, A. E. Bodoki, A. Falamas, N. Tosa, C. M. Muntean, C. Farcău, E. Bodoki, *Review on combining surface-enhanced Raman spectroscopy and electrochemistry for analytical applications*, **Anal. Chim. Acta** **2022**, *1209*, 339250.
12. I. M. Handrea-Dragan, A. Vulpoi, C. Farcău, I. Botiz, *Spheres-In-Grating Assemblies with Altered Photoluminescence and Wetting Properties*, **Nanomaterials** **2022**, *12*, 1084.
13. A.-S. Tatar, C. Farcău, A. Vulpoi, S. Boca, S. Astilean, *Development and evaluation of a gold nanourchin (GNU)-based sandwich architecture for SERS immunosensing in liquid*, **Spectrochim. Acta A: Mol. Biomol. Spectrosc.** **2022**, *273*, 121069.
14. N. Nechita, C. Farcau, *Tuning plasmons of metal-coated microsphere arrays towards optimized surface-enhanced spectroscopy*, **Opt. Express** **2021**, *29*, 42238.
15. C. Farcau, *Silver film over nanospheres (AgFoN) as tri-modal plasmonic sensing platform for Surface Plasmon Resonance Spectroscopy, Surface-Enhanced Raman Scattering, and Surface-Enhanced Fluorescence*, **J Mol. Struct.** **2022**, *1250*, 131583.
16. R. Moldovan, B.-C. Iacob, C. Farcau, E. Bodoki, R. Oprean, *Strategies for SERS detection of organochlorine pesticides*, **Nanomaterials** **2021**, *11*, 304.
17. R. Tarcan, M. Handrea-Dragan, O. Todor-Boer, I. Petrovai, C. Farcau, M. M. Rusu, A. Vulpoi Lazar, M. Todea, S. Astilean, I. Botiz, *A new, fast and facile synthesis method for reduced graphene oxide in N,N-dimethylformamide*, **Synth. Met.** **2020**, *269*, 116576.

18. C. Farcau, A. M. Craciun, R. A. L. Vallee, *Surface-Enhanced Fluorescence Imaging on Linear Arrays of Plasmonic Half-Shells*, **J. Chem. Phys.** **2020**, *153*, 164701.
19. A. M. M. Gherman, S. Boca, A. Vulpoi, M. V. Cristea, C. Farcau, V. Tosa, *Plasmonic photothermal heating of gold nanostars in a real-size container: multiscale modelling and experimental study*, **Nanotechnology** **2020**, *31*, 125701.
20. A.M. M. Gherman, A. Vladescu, A. E. Kiss, C. Farcau, *Extraordinary optical transmission through titanium nitride-coated microsphere lattice*, **Photonic Nanostruct.** **2020**, *38*, 100762.
21. C. Farcau, D. Marconi, A. Colnita, I. Brezestean, L. Barbu-Tudoran, *Gold Nanopost-Shell Arrays Fabricated by Nanoimprint Lithography as a Flexible Plasmonic Sensing Platform*, **Nanomaterials** **2019**, *9*, 1519.
22. C. Farcau, *Metal-coated microsphere monolayers as surface plasmon resonance sensors operating in both transmission and reflection modes*, **Sci. Rep.** **2019**, *9*, 3683.
23. A. Falamas, V. Tosa, C. Farcau, *Hybrid architectures made of nonlinear-active and metal nanostructures for plasmon-enhanced harmonic generation*, **Opt. Mater.** **2019**, *88*, 653.
24. C. I. Pruncu, M. Braic, K. D. Dearn, C. Farcau, R. Watson, L. R. Constantin, M. Balaceanu, V. Braic, A. Vladescu, *Corrosion and tribological performance of quasi-stoichiometric titanium containing carbonitride coatings*, **Arab. J. Chem.** **2017**, *10*, 1015.
25. C. Tira, I. Ly, R. Vallee, S. Astilean, C. Farcau, *Shaping light spectra and field profiles in metal-coated monolayers of etched microspheres*, **Opt. Mat. Express** **2017**, *7*, 2847.
26. I. Botiz, M.A. Codescu, C. Farcau, C. Leordean, S. Astilean, C. Silva, N. Stingelin, *Convective self-assembly of pi-conjugated oligomers and polymers*, **J. Mat. Chem. C** **2017**, *5*, 2513.
27. D. Zaharie-Butucel, L. Digianantonio, C. Leordean, L. Ressler, S. Astilean, C. Farcau, *Flexible transparent sensors from reduced graphene oxide micro-strips fabricated by convective self-assembly*, **Carbon** **2017**, *113*, 361.
28. B.-C. Iacob, E. Bodoki, C. Farcau, L. Barbu-Tudoran, R. Oprean, *Study of the molecular recognition mechanism of an ultrathin MIP film -based chiral electrochemical sensor*, **Electrochim. Acta** **2016**, *217*, 195.
29. D. Ailincăi, C. Farcau, E. Paslaru, L. Marin, *PDLC composites based on polyvinyl boric acid matrix – a promising pathway towards biomedical engineering*, **Liq. Cryst.** **2016**, *43*, 1973.
30. L. Constantin, M. Braic, M. Dinu, M. Balaceanu, V. Braic, C. Farcau, A. Vladescu, *Effects of Zr, Nb, or Si addition on the microstructural, mechanical, and corrosion resistance of TiCN hard coatings*, **Mater. Corros.** **2016**, *67*, 929.
31. S. Boca, C. Farcau, M. Baia, S. Astilean, *Metanephrine neuroendocrine tumor marker detection by SERS using Au nanoparticle / Au film sandwich architecture*, **Biomed. Microdev.** **2016**, *18*, 12.
32. S. Boca, C. Leordean, S. Astilean, C. Farcau, *Chemiresistive / SERS dual sensor based on densely packed gold nanoparticles*, **Beilstein J. Nanotechnol.** **2015**, *6*, 2498.

33. C. Farcau, R. A. L. Vallee, S. Boca, S. Astilean, *Polarized SERS on linear arrays of silver half-shells: SERS re-radiation modulated by local density of optical states*, **J. Opt.** **2015**, *17*, 1140007. Promoted as Lab Talk on IOP.org.
34. A. Cernat, E. Bodoki, C. Farcau, S. Aștilean, S. Griveau, F. Bedioui, R. Săndulescu, *Surface modeling of nanopatterned polymer films obtained by colloidal templated electropolymerization*, **J. Nanosci. Nanotech.** **2015**, *15*, 3359.
35. P. Moutet, N. M. Sangeetha, L. Ressler, N. Vilar-Vidal, M. Comesaña, S. Ravaine, R. A. L. Vallée, A. M. Gabudean, S. Astilean, C. Farcau, *Surface-Enhanced Spectroscopy on Plasmonic Oligomers Assembled by AFM nanoxerography*, **Nanoscale** **2015**, *7*, 2009.
36. A. Diac, M. Focsan, C. Socaci, A.-M. Gabudean, C. Farcau, D. Maniu, E. Vasile, A. Terec, L.M. Veca, S. Astilean, *Covalent conjugation of carbon dots with Rhodamine B and assesment of their photophysical properties*, **RSC Advances** **2015**, *5*, 77662.
37. M. Tertiş, O. Hosu, L. Fritea, C. Farcau, R. Săndulescu, C. Cristea, *A Novel Label-free Immunosensor Based on Activated Graphene Oxide for Acetaminophen Detection*, **Electroanalysis** **2015**, *27*, 638.
38. C. Farcau, S. Astilean, *Periodically Nanostructured Substrates for Surface Enhanced Raman Spectroscopy*, **J. Mol. Struct.** **2014**, *1073*, 102.
39. C. Leordean, M. Potara, S. Boca-Farcau, A. Vulpoi, S. Astilean, C. Farcau, *Multiscale Electromagnetic SERS Enhancement on Self-Assembled Micro-Patterned Gold Nanoparticle Films*, **J. Raman Spectr.** **2014**, *45*, 627.
40. P. Benzo, C. Bonafos, M. Bayle, R. Carles, L. Cattaneo, C. Farcau, G. Benassayag, B. Pécassou, D. Muller, *Controlled synthesis of buried delta-layers of Ag nanocrystals for near-field plasmonic effects on free surfaces*, **J. Appl. Phys.** **2013**, *113*, 193505.
41. H. Moreira, J. Grisolia, N. M. Sangeetha, N. Decorde, C. Farcau, B. Viallet, K. Chen, G. Viau, L. Ressler, *Electron transport in gold colloidal nanoparticle based strain gauges*, **Nanotechnology** **2013**, *24*, 095701.
42. V. Saracut, M. Giloan, M. Gabor, S. Astilean, C. Farcau, *Polarization-sensitive linear plasmonic nanostructures via colloidal lithography with uni-axial colloidal arrays*, **ACS Appl. Mat. Int.** **2013**, *5*, 1362. Promoted as journal cover.
43. C. Farcau, M. Potara, C. Leordean, S. Boca, S. Astilean, *Reliable plasmonic substrates for bioanalytical SERS applications easily prepared by convective assembly of gold nanocolloids*, **Analyst** **2013**, *138*, 546.
44. Cernat, S. Griveau, P. Martin, J.-C. Lacroix, C. Farcau, R. Sandulescu, F. Bedioui, *Electrografted nanostructured platforms for click chemistry*, **Electrochem. Commun.** **2012**, *23*, 141.
45. C. Farcau, M. Giloan, E. Vinteler, S. Astilean, *Understanding plasmon resonances in metal coated colloidal crystal monolayers*, **Appl. Phys. B** **2012**, *106*, 849.

46. M. Potara, M. Baia, C. Farcau, S. Astilean, *Chitosan-coated anisotropic silver nanoparticles as a SERS substrate for single-molecule detection*, **Nanotechnology** **2012**, *23*, 055501. Promoted in the Highlights of 2012 collection, on IOP.org (<http://iopscience.iop.org/journal/0957-4484/page/Highlights%20of%202012>).
47. G. BenAssayag, C. Farcau, P. Benzo, L. Cattaneo, C. Bonafos, B. Pecassou, A. Zwick, R. Carles, *3D Patterning of Ag Nanoparticles by ULE Ion Implantation and Stencil Soft Lithography for Plasmonic Device Applications*, **Nucl. Instr. and Meth. B** **2012**, *272*, 214.
48. C. Farcau, N. M. Sangeetha, N. Decorde, S. Astilean, L. Ressier, *Microarrays of gold nanoparticle clusters fabricated by Stop&Go convective self-assembly for SERS-based sensor chips*, **Nanoscale** **2012**, *4*, 7870.
49. R. Carles, C. Farcau, C. Bonafos, G. Benassayag, M. Bayle, P. Benzo, J. Groenen, A. Zwick, *Three Dimensional Design of Silver Nanoparticle Assemblies Embedded in Dielectrics for Raman Spectroscopy Enhancement and Dark-Field Imaging*, **ACS Nano** **2011**, *5*, 8774.
50. C. Farcau, N. M. Sangeetha, H. Moreira, B. Viallet, J. Grisolia, D. Ciuculescu-Pradines, L. Ressier, *High Sensitivity Strain Gauge Based on a Single Wire of Gold Nanoparticles Fabricated by Stop-and-Go Convective Self-Assembly*, **ACS Nano** **2011**, *5*, 7137.
51. C. Farcau, H. Moreira, B. Viallet, J. Grisolia, D. Ciuculescu-Pradines, C. Amiens, L. Ressier, *Monolayered Wires of Gold Colloidal Nanoparticles for High-Sensitivity Strain Sensing*, **J. Phys. Chem. C** **2011**, *115*, 14494. Promoted as journal cover.
52. C. Farcau, S. Astilean, *Simple Colloidal Lithography Approach to Generate Inexpensive Stamps for Polymer Nano-Patterning*, **Mat. Lett.** **2011**, *65*, 2190.
53. C. Farcau, S. Astilean, *Evidence of a surface plasmon-mediated mechanism in the generation of the SERS background*, **Chem. Commun.** **2011**, *47*, 3861; Special issue on SERS.
54. C. Farcau, H. Moreira, B. Viallet, J. Grisolia, L. Ressier, *Tunable Conductive Nanoparticle Wire Arrays Fabricated by Convective Self-assembly on Non-patterned Substrates*, **ACS Nano** **2010**, *4*, 7275.
55. P. Benzo, L. Cattaneo, C. Farcau, A. Andreozzi, M. Perego, G. Benassayag, B. Pecassou, R. Carles, C. Bonafos, *Stability of Ag nanocrystals synthesized by ultra-low energy ion implantation in SiO₂ matrices*, **J. Appl. Phys.** **2011**, *109*, 103524.
56. C. Farcau, C. Bonafos, P. Benzo, G. Benassayag, R. Carles, *Combining elastic and inelastic optical spectroscopies for multiscale probing of embedded nanoparticle architectures*, **J. Appl. Phys.** **2010**, *108*, 093516.
57. P. G. Kuzmin, V.V. Bukin, S.V. Garnov, G.A. Shafeev, C. Farcau, R. Carles, B. Warrot-Fontrose, V. Guieu, G. Viau, *Silicon nanoparticles produced by femtosecond laser ablation in ethanol: size control, structural characterization and optical properties*, **J. Phys. Chem. C** **2010**, *114*, 15266.
58. C. Farcau, S. Astilean, *Mapping the SERS Efficiency and Hot-Spots Localization on Gold Film over Nanospheres Substrates*, **J. Phys. Chem. C** **2010**, *114*, 11717.

59. C. Farcau, S. Astilean, *Silver half-shell arrays with controlled plasmonic response for fluorescence enhancement optimization*, **Appl. Phys. Lett.** **2009**, *95*, 193110.
60. R. Carles, C. Farcau, C. Bonafos, G. Benassayag, B. Pécassou, A. Zwick, *The synthesis of single layers of Ag nanocrystals by ultra-low-energy ion implantation for large-scale plasmonic structures*, **Nanotechnology** **2009**, *20*, 355305.
61. E. Vințeler, C. Farcău, S. Aștilean, *Disorder effects in reflectance spectra of colloidal photonic crystals*, **Nucl. Instr. and Meth. B** **2009**, *267*, 393.
62. S. C. Boca, C. Farcau, S. Astilean, *The study of Raman enhancement efficiency as function of nanoparticle size and shape*, **Nucl. Instr. and Meth. B** **2009**, *267*, 406.
63. C. Farcău, E. Vinteler, S. Aștilean, *Experimental and theoretical investigation of optical properties of colloidal photonic crystal films*, **J. Optoelectron. Adv. Mat.** **2008**, *10*, 3165.
64. E. Vințeler, C. Farcău, S. Aștilean, *Designing the colour of photonic crystals for sensors applications*, **J. Optoelectron. Adv. Mat.** **2008**, *10*, 2298.
65. C. Farcau, V. Canpean, M. Gabor, T. Petrisor Jr., S. Astilean, *Periodically nanostructured noble-metal thin films with enhanced optical properties*, **J. Optoelectron. Adv. Mat.** **2008**, *10*, 809.
66. M. Todica, E. Dinte, C.V. Pop, C. Farcau, S. Astilean, *Raman investigation of some polymeric gels of pharmaceutical interest*, **J. Optoelectron. Adv. Mat.** **2008**, *10*, 823.
67. C. Farcau, S. Astilean, *Probing the unusual optical transmission of silver films deposited on twodimensional regular arrays of polystyrene microspheres*, **J. Opt. A: Pure Appl. Opt.** **2007**, *9*, S345.
68. M. Todica, C.V. Pop, E. Dinte, C. Farcau, S. Astilean, *Preliminary investigation by Raman spectroscopy of some polymeric matrix with pharmaceutical applications*, **Mod. Phys. Lett. B** **2007**, *21*, 987.
69. F. Járai-Szabó, Z. Néda, S. Aștilean, C. Farcău, A. Kuttesch, *Shake-induced order in nanosphere systems*, **Eur. Phys. J. E** **2007**, *23*, 153.
70. C. Farcau, S. Astilean, *Understanding plasmonic properties and surface-enhanced Raman scattering of silver coated colloidal crystals*, **J. Optoelectron. Adv. Mat.** **2007**, *9*, 772.
71. C. Farcau, S. Astilean, *Optical and structural characterization of periodic silver-polystyrene nanocomposites*, **J. Optoelectron. Adv. Mat.** **2005**, *7*, 2721.

► **Other articles indexed in WoS**

72. R. Carles, C. Farcau, J. Campos, C. Bonafos, G. Benassayag, A. Zwick, *Low-Energy Ion Beam Synthesis as a New Route toward Plasmonic Nanostructures*, Mater. Res. Soc. Symp. Proc. 2009, 1182, 15-20; 1182-EE09-21. ISBN: 978-1-60511-155-1. (6 pag) ([WoS](#), [Proceedings Paper](#))

73. A. Kuttesch, C. Farcau, Z. Neda, S. Astilean, *Controlled deposition of photonic polystyrene-nanosphere films*, Proc. SPIE 2007, 6785, 678500. ISBN: 978-0-8194-6949-6. (8 pag) ([WoS](#), [Proceedings Paper](#))
74. C. Farcau, A. Kuttesch, T. Petrisor, L. Barbu-Todoran, C. Craciun, S. Astilean, *Interplay between photonic and plasmonic modes in optical properties of silver-coated two dimensional colloidal crystals*, Proc. SPIE 2007, 6785, 678518. ISBN: 978-0-8194-6949-6. (8 pag) ([WoS](#), [Proceedings Paper](#))

► **In other databases**

75. V. Canpean, C. Farcau, E. Vinteler, S. Astilean, *Antireflective properties of polystyrene nanosphere selfassembled films*, in Progress in Nanoscience and Nanotechnologies, Ed. Acad. Romane, Buc., 2007, p.68- 77. ISBN 978-973-27-1576-5. (10 pag)
76. V. Canpean, E. Vinteler, C. Farcau, S. Astilean, *Experimental and Theoretical Investigation of Optical Properties of Periodic Monolayers of Etched Nanospheres*, JOAM-Symposia 2010, 2, 78.
77. M.Potara, D.Maniu, C. Farcau, S.Astilean, A Rapid, Straightforward Method For SynthesisOf Bio-Compatible Gold Nanoparticles, Studia Universitas Babes Bolyai, Physica, LIII, 1 79-85, 2008.
78. C. Farcau, S. Astilean, *Silver film deposited on colloidal crystals template as high sensitivity SERS substrate*, Asian J. Phys. 2006, 15, 159.
79. C. Farcau, S. Astilean, *Noble metal nanoparticle array for surface enhanced Raman spectroscopy*, Studia Univ. Babes-Bolyai, SeriaPhysica, XLX, 2, 443, 2005.