

PERSONAL INFORMATION

Name: GABRIELA CARJA

Present academic position: Professor (Department of Chemical Engineering, Technical University "Gheorghe Asachi" of Iasi), Ph. D. adviser in the field of "Chemical Engineering" from 2008; 7 Ph.D. students already defended their Ph.D. thesis up to 2015.

Current address, e-mail, phone: Technical University Gheorghe Asachi of Iasi, Faculty of Chemical Engineering and Environmental Protection, Blvd. D. Mangeron no 71, Iasi, RO-700050, Romania.

Married, one daughter that defended her Ph. D. in Bio-Informatics at Stanford University, USA, 2015.

Tel./Fax: +40278680/2262

E-mail: carja@uaic.ro; gcarja@ch.tuiasi.ro



EDUCATION

1982-1987 Faculty of Industrial Chemistry, Polytechnic Institute of Iasi.

1990-1996 Ph.D. studies at "Gheorghe Asachi" Technical University of Iasi.

1997-1998 Postdoctoral Fellow Instituto Superior Tecnico, Lisbon, Portugal.

1999-2000 Postgraduate "Course for the Advanced Research in Chemistry and Chemical Engineering", Tokyo, Japan.

1990-1996 Assistant Professor at "Gheorghe Asachi" Technical University of Iasi.

1997-2003 Lecturer at "Gheorghe Asachi" Technical University of Iasi.

2004-2007 Associate Professor at "Gheorghe Asachi" Technical University of Iasi.

2008- Professor of Physical Chemistry at "Gheorghe Asachi" Technical University of Iasi.

PROFESSIONAL EXPERIENCE

) Oxford University visiting fellow for East-European Countries, under a Soros Foundation grant, September, Oxford, London, 1997.

) Visiting scientist at ENSCM, Ecole Nationale Supérieure de Chimie de Montpellier, Lab. Matériaux Catalytiques et Catalyse, Montpellier, France, under a grant supported by French Environmental Agency EGIDE, France, 2003-2004

) UNESCO research fellow, Tokyo Institute of Technology, Tokyo, Japan, 1999-2000, September-November, 2005, October 2006, June-July 2007, September 2009, June 2010.

) Visiting Professor employed at University Blaise Pascal, France, June 2013.

) Visiting Professor employed at Tokyo Institute of Technology, Japan, August-October 2012.

) Invited Professor University Antwerpen, Belgium, March, 2013, June 2015.

) Invited researcher at University of Salamanca, Spain, September 2015.

) Invited researcher at Instituto Mexicano del Petroleo, Mexico-City, Mexico May 2016.

AWARDS (SELECTED)

) "Gheorghe Spacu" Award of the Romanian Academy, 2009.

) Education Awards Gala of Dinu Patriciu Foundation - the researcher of the year, the 1st Prize, 2009

- J Centennial Memorial Award of Tokyo Institute of Technology, Japan, 2005
- J Medal of Tokyo Institute of Technology for the research activity developed at the Japanese university.
- J Diploma award of "The 35th International Course for the Advanced Research in Chemistry and Chemical Engineering", Tokyo, Japan.
- J Diploma Award of the European Materials Research Society for organizing the International Conference E-MRS Fall Meeting 2014, Symposium C: [Inorganic nanoarchitectonics: from design and fabrication to sustainable solutions](#), Warsaw, Poland, 2014.

AWARDS FOR PATENTED AND INVENTORY RESEARCH

- J [Silver Medal of the International Competition for Inventory Research](#) EUREKA Brussels, Belgium 2010, for the proposal of the invention "Process for obtaining biocomposites based on cellulose acetate and anionic clay", ([Brevet no: 126849/2012](#) authors: G. Ciobanu, G. Carja.
- J [Gold Medal and Excellence Diploma Award](#) of the International Exhibition of Inventions, Cluj Napoca 2014.
- J Gold Medal of the International Exhibition of Inventions EUROINVENT, Iasi 2012.

EDITORIAL ACTIVITY

- J Member of the Editorial Board of SOJ CHROMATOGRAPHIC SCIENCE SYMBIOSIS, USA, ISSN 2471-3627.
- J Member of the Editorial Advisory Board of the Bulletin of the Polytechnic Institute from Iasi, Chemistry and Chemical Engineering Section, ISSN: 0254 – 7104.
- J [Advisory Editor of Clay Science, Journal of the Clay Science Society of Japan](#), online ISSN: 2186-3563 print ISSN: 0470-6455.

EXPERIENCE IN EVALUATING RESEARCH AT NATIONAL AND INTERNATIONAL LEVEL (selected)

- J Expert- Evaluator for FP7 and Horizon 2020 grants (People).
- J Expert Evaluator for European-Japanese conjoint Research grants 2012-2014.
- J Expert Evaluator for Norway-Czech conjoint Research grants 2014.
- J Expert-Evaluator for PNCDI II Projects and CNCSIS projects during 2004-2015.
- J Expert-Rapporteur of 5 European COST ACTIONS during 2011-2016.
- J [2010-2014, DC Rapporteur of European Cooperation in Science and Technology Commission \(COST\) representing Romania in the Domain: Physics, Materials and Nanosciences.](#)
- J Scientific referee for international journals in the fields of interests (e.g. Applied Catalysis B, Journal of Catalysis, Chemistry of Materials, Chemical Communication, Environmental Science and Technology)
- J Head of the nanostructured layered materials laboratory, Technical University Gheorghe Asachi of Iasi
- J Member of the National Council of Scientific Research for Higher Education (CNCSIS) 2008-2011.
- J Member of National Council of Scientific Research (CNCS) 2011-2012. Coordinator of Materials Science Commissions.
- J Member of CNATDCU, Material Science Commission, 2010-2012.

COMPETENCES IN CHEMICAL ENGINEERING, NANOSCIENCES AND MATERIALS SCIENCE RESEARCH

Over 120 published papers in international journals; from these, 77 papers in ISI quoted Journals from the field of Chemical Engineering, Nanoscience and Materials Science.

With a HIRSCH Factor equal of 19 in ISI WEB OF SCIENCE and equal 22 in Google Scholar;

5 representative research results obtained by cooperation at international and national level and published in highly quoted ISI journals, in recent years:

1. Carja G., Grosu, E. F., Petrarean C., Nechita N.
Self-assemblies of plasmonic gold/layered double hydroxides with highly efficient antiviral effect against the hepatitis B virus
[NANORESEARCH](#); Impact Factor= 7.010 (Springer Press), 2015, 8 (11) pp. 3512-3523.
2. Seftel E.M., Puscasu M.C., Mertens M; Cool P.; Carja, G. (corresponding author)
Fabrication of CeO₂/LDHs self-assemblies with enhanced photocatalytic performance: A case study on ZnSn-LDH matrix
[APPLIED CATALYSIS B-ENVIRONMENTAL](#); Impact Factor= 7.435 (Elsevier Press) 2015, vol 164, pp 251-260.
3. Carja, G., Dartu, L., Okada, K., Fortunato, E.,
Nanoparticles of copper oxide on layered double hydroxides and the derived solid solutions as wide spectrum active nano-photocatalysts
[CHEMICAL ENGINEERING JOURNAL](#); Impact Factor= 4.321 (Elsevier Press) 2013, vol. 222 pp. 60-66.
4. Carja, G., Birsanu, M., Okada, K., Garcia, H.,
Composite plasmonic gold/layered double hydroxides and derived mixed oxides as novel photocatalysts for hydrogen generation under solar irradiation
[JOURNAL OF MATERIALS CHEMISTRY A](#), Impact Factor= 7.443 (Royal Society Press) 2013, vol.1, no 32, pp: 9092-9098.
5. Carja Gabriela; Nakajima, Akira; Dranca, Sofronia, Dranca Cristian, Okada Kyoshi
TiO₂/ZnLDH as a Self-Assembled Nanocomposite with Photoresponsive Properties
[JOURNAL OF PHYSICAL CHEMISTRY C](#) Impact Factor= 4.772 (American Chemical Society Press) 2010 vol. 114 Issue: 35 pp: 14722-14728.

J European Research Society Fall Meeting 2014, organizing Symposium K: Inorganic nanoarchitectonics: from design and fabrication to sustainable solutions together with Professor Hermelegildo Garcia (University of Valencia, Spain) and dr. Vanessa Prevot (University Blaise Pascal, France).

SCIENTIFIC COMPETENCES AND RESEARCH DIRECTIONS

- J Synthesis, physical – chemical characterization and self-organizations of nanoparticles and nanostructured assemblies.
- J Applications of nanostructured assemblies and nanocomposites in chemical engineering processes (CO₂ reduction, Water splitting).
- J Nanocatalysts for applications in environmental catalysis.

] Plasmonic nanostructures and new photoresponsive nanostructured materials.

RESEARCH THEMES/GRANTS

-] new products and original technologies: 3
-] research themes with industrial companies – 5 (3 as responsible or director, and 2 as member of the research group)
-] national grants: 14 (11 as project director)
-] 5 grants awarded by CNCSIS (4 as director)
-] 6 grants awarded within PNCDI-I
-] 2 grant awarded within PNCDI-II (IDEI Programme, as director)
-] 2 grants awarded by the Ministry Romanian Academy (as director)
-] international research grants: 5 (2 under cooperation with industrial partners: 1 in cooperation with FIAT Center of Research, Torino, Italy under a FP7 grant, 1 in cooperation with French Environmental Agency, EGIDE).

SELECTED PUBLICATIONS

- Shogo Kawamura, Magda C. Puscasu, Yusuke Yoshida, Yasuo Izumi, Gabriela Carja;
Tailoring assemblies of plasmonic silver/gold and zinc–gallium layered double hydroxides for photocatalytic conversion of carbon dioxide using UV–visible light
[Applied Catalysis A: General 504/ 5, 2015, pp. 238–247.](#)
- E.M. Seftel, M.C. Puscasu, M. Mertens, P. Cool, G. Carja;
Fabrication of CeO₂/LDHs self-assemblies with enhanced photocatalytic performance: A case study on ZnSn-LDH matrix
[Applied Catalysis B: Environmental 64, 2015, pp 251–260.](#)
- E.M. Seftel M. Puscasu, M. Mertens, P. Cool, G. Carja;
Photo-responsive behavior of -Fe₂O₃ NPs embedded into ZnAlFe-LDH matrices and their catalytic efficiency in wastewater remediation
[Catalysis Today Volume 252, 1, 2015, pp. 7–13.](#)
- Mihaela Mureseanu ,Viorica Parvulescu, Teodora Radu, Mihaela Filip, Gabriela Carja;
Mesoporous CeTiSiMCM-48 as novel photocatalyst for degradation of organic compounds
[Journal of Alloys and Compounds Volume 648, 5, 2015 pp. 864–873.](#)
- Gabriela Carja, Elena Florentina Grosu, Catalina Petreanean, Norica Nichita ;
Self-assemblies of plasmonic gold/layered double hydroxides with highly efficient antiviral effect against the hepatitis B virus
[Nano Research 2015, 8 \(11\) pp. 3512-3523.](#)
- C. M Puscasu, E. Seftel, M. Mertens, P. Cool, G. Carja;
ZnTiLDH and the Derived Mixed Oxides as Mesoporous Nanoarchitectonics with Photocatalytic Capabilities
[Journal of Inorganic and Organometallic Polymers and Materials, 2015, Volume 25, Issue 2, pp 259-266.](#)
- [Catalysis Letters, August 2015, Volume 145, Issue 8, pp 1529-1540](#)
CuII(Sal-Ala)/CuAILDH Hybrid as Novel Efficient Catalyst for Artificial Superoxide Dismutase (SOD) and Cyclohexene Oxidation by H₂O₂
- M. Mure eanu, M. Pu ca u, S. Somacescu, Gabriela Carja
- [International Journal of Polymeric Materials and Polymeric Biomaterials Volume 64, Issue 12, 2015](#)
Chitosan/Poly(Vinyl Alcohol)/LDH Biocomposites With pH-Sensitive Properties
Maria Bercea, Elena-Livia Bibire, Simona Morariu Gabriela Carja

- [European Polymer Journal Volume 70, September 2015, pp. 147–156](#)
pH influence on rheological and structural properties of chitosan/poly(vinyl alcohol)/layered double hydroxide composites
Maria Bercea, Elena-Livia Bibire, Simona Morariu, Mirela Teodorescu, Gabriela Carja
- M Mure eanu, I Georgescu, L.E. Bibire, G Carja -Cu II (Sal-Ala)/MgAILDH and CU II (Sal-Phen)/MgAILDH as novel catalytic systems for cyclohexene oxidation by H₂O₂.
[Catalysis Communications 54, 39-44. 2014](#)
- E.M. Seftel, M.C. Puscasu, M. Mertens, P. Cool, G. Carja - Assemblies of nanoparticles of CeO₂-ZnTi-LDHs and their derived mixed oxides as novel photocatalytic systems for phenol degradation, [2014; Applied Catalysis B: Environmental 150-151, pp. 157-166.](#)
- Laura Dartu, Carmen Zaharia, Gabriela Carja – Application of new synthesized materials based on anionic clays for industrial effluent decoloration, [2014; Advanced Materials Research 837, pp. 271-276.](#)
- Georgescu, I., Mure eanu, M., Carja, G., Hulea, V. - Adsorptive removal of cadmium and copper from water by mesoporous silica functionalized with N-(aminothioxomethyl)-2-thiophen carboxamide, [2013; Journal of Environmental Engineering \(United States\) 139 \(10\), pp. 1285-1296.](#)
- Carja, G., Birsanu, M., Okada, K., Garcia, H. - Composite plasmonic gold/layered double hydroxides and derived mixed oxides as novel photocatalysts for hydrogen generation under solar irradiation, [2013; Journal of Materials Chemistry A 1 \(32\), pp. 9092-9098.](#)
- Katsumata, K.-I., Sakai, K., Ikeda, K., Carja, G., Matsushita, N., Okada, K. - Preparation and photocatalytic reduction of CO₂ on noble metal (Pt, Pd, Au) loaded Zn-Cr layered double hydroxides, [2013; Materials Letters 107, pp. 138-140.](#)
- Birsanu, M., Pu ca u, M., Gherasim, C., Carja, G. - Removal of two industrial dyes from aqueous solutions using hydrotalcite-like anionic clays and their derived mixed oxides as highly efficient photocatalysts, [2013; Environmental Engineering and Management Journal 12 \(5\), pp. 923-928.](#)
- Odochian, L., Moldoveanu, C., Carja, G. - Contributions to the thermal degradation mechanism under air atmosphere of PTFE by TG-FTIR analysis: Influence of the additive nature, [2013; Thermochemica Acta 558, pp. 22-28.](#)
- Carja, G., Dartu, L., Okada, K., Fortunato, E. - Nanoparticles of copper oxide on layered double hydroxides and the derived solid solutions as wide spectrum active nano-photocatalysts, [2013; Chemical Engineering Journal 222, pp. 60-66.](#)
- Bouariu, S., Dartu, L., Carja, G. - Silver-layered double hydroxides self-assemblies: Study on the thermal behavior using TG-FTIR analysis, [2013; Journal of Thermal Analysis and Calorimetry 111 \(2\), pp. 1263-1271.](#)
- Carja, G., Lehotu, G., Dartu, L., Mertens, M., Cool, P. - Layered double hydroxides reconstructed in calcium glutamate aqueous solution as a complex delivery system, [2012; Applied Clay Science 65-66, pp. 37-42.](#)
- Pui, A., Gherca, D., Carja, G. - Characterization and magnetic properties of capped CoFe₂O₄ nanoparticles ferrite prepared in carboxymethylcellulose solution, [2011; Digest Journal of Nanomaterials and Biostructures 6 \(4\), pp. 1783-1791.](#)
- Carja, G., Husanu, E., Gherasim, C., Iovu, H. - Layered double hydroxides reconstructed in NiSO₄ aqueous solution as highly efficient photocatalysts for degrading two industrial dyes, [2011; Applied Catalysis B: Environmental 107 \(3-4\), pp. 253-259.](#)
- Pui, A., Malutan, T., Tataru, L., Malutan, C., Humelnicu, D., Carja, G. - New complexes of lanthanide Ln(III), (Ln = La, Sm, Gd, Er) with Schiff bases derived

- from 2-furaldehyde and phenylenediamines, 2011; [Polyhedron 30 \(12\)](#), pp. 2127-2131.
- Carja, G., Vieru, A., Dranca, S., Ciobanu, G., Husanu, E. - Uptake of anionic surfactants from aqueous medium by using porous anionic clays with tailored properties, 2011; [Desalination and Water Treatment 26 \(1-3\)](#), pp. 211-214.
 - Carja, G., Nakajima, A., Dranca, C., Okada, K. - Nanoparticles of nickel oxide: Growth and organization on zinc-substituted anionic clay matrix by one-pot route at room temperature, 2010; [Journal of Nanoparticle Research 12 \(8\)](#), pp. 3049-3056.
 - Mocanu, A.M., Odochian, L., Moldoveanu, C., Carja, G. - TG-FTIR study on thermal degradation in air of some new diazoaminoderivatives (II), 2010; [Thermochimica Acta 509 \(1-2\)](#), pp. 33-39.
 - Carja, G., Nakajima, A., Dranca, S., Dranca, C., Okada, K. - TiO₂/ZnLDH as a self-assembled nanocomposite with photoresponsive properties, 2010; [Journal of Physical Chemistry C 114 \(35\)](#), pp. 14722-14728.
 - Carja, G., Kameshima, Y., Ciobanu, G., Okada, K. - Oleate-LDH hybrids by the successive use of the clay structural "memory effect", 2010; [Journal of Nanoscience and Nanotechnology 10 \(4\)](#), pp. 2880-2884.
 - Carja, G., Dranca, S., Lehtu, G. - Stabilization of cefotaxime in hydrotalcite - Like anionic clay matrix and its controlled release, 2010; [Revista de Chimie 61 \(1\)](#), pp. 27-30.
 - Ciobanu, G., Carja, G. - Electrolyte removal by mixed matrix membranes based on polyurethane, 2010; [Desalination 250 \(2\)](#), pp. 698-701.
 - Carja, G., Kameshima, Y., Nakajima, A., Dranca, C., Okada, K. - Nanosized silver-anionic clay matrix as nanostructured ensembles with antimicrobial activity, 2009; [International Journal of Antimicrobial Agents 34 \(6\)](#), pp. 534-539.
 - Carja, G., Dranca, S., Husanu, E., Volf, I. - Iron containing anionic clays supported with iron and cerium oxides as catalyst precursors for NO_x reduction, 2009; [Environmental Engineering and Management Journal 8 \(3\)](#), pp. 553-557.
 - Ciobanu, G., Carja, G., Ciobanu, O., Sandu, I., Sandu, A. - SEM and EDX studies of bioactive hydroxyapatite coatings on titanium implants, 2009; [Micron 40 \(1\)](#), pp. 143-146.
 - Carja, G., Kameshima, Y., Ciobanu, G., Chiriac, H., Okada, K. - New hybrid nanostructures based on oxacillin-hydrotalcite-like anionic clays and their textural properties, 2009; [Micron 40 \(1\)](#), pp. 147-150.
 - Carja, G., Kameshima, Y., Okada, K. - Nanoparticles of iron and vanadium oxides supported on iron substituted LDHs: Synthesis, textural characterization and their catalytic behavior in ethylbenzene dehydrogenation, 2008; [Microporous and Mesoporous Materials 115 \(3\)](#), pp. 541-547.
 - Odochian, L., Mocanu, A.M., Moldoveanu, C., Carja, G., Oniscu, C. - Thermal degradation studies on some metal hydrazinic complexes, 2008; [Journal of Thermal Analysis and Calorimetry 94 \(2\)](#), pp. 329-334.
 - Carja, G., Chitanu, G.C., Kameshima, Y., Chiriac, H., Okada, K. - LDH-maleic anhydride copolymers as new hybrid materials and their textural organisation, 2008; [Applied Clay Science 41 \(3-4\)](#), pp. 107-112.
 - Ciobanu, G., Carja, G., Ciobanu, O. - Structure of mixed matrix membranes made with SAPO-5 zeolite in polyurethane matrix, 2008; [Microporous and Mesoporous Materials 115 \(1-2\)](#), pp. 61-66.
 - Carja, G., Ratoi, S., Ciobanu, G., Balasanian, I. - Uptake of As(V) from aqueous solution by anionic clays type FeLDHs, 2008; [Desalination 223 \(1-3\)](#), pp. 243-248.

- Ciobanu, G., Carja, G., Ciobanu, O. - Structural characterization of hydroxyapatite layer coatings on titanium supports, 2008; [Surface and Coatings Technology 202 \(11\)](#), pp. 2467-2470.
- Ciobanu, G., Carja, G., Ciobanu, O. - Preparation and characterization of polymer-zeolite nanocomposite membranes, 2007; [Materials Science and Engineering C27 \(5-8 SPEC. ISS.\)](#), pp. 1138-1140.
- Carja, G., Niiyama, H., Ciobanu, G., Aida, T. - Towards new drugs formulations: Gentamicin-anionic clay as nanohybrids, 2007; [Materials Science and Engineering C27 \(5-8 SPEC. ISS.\)](#), pp. 1129-1132.
- Carja, G., Kameshima, Y., Okada, K., Madhusoodana, C.D. - Mn-Ce/ZSM5 as a new superior catalyst for NO reduction with NH₃, 2007; [Applied Catalysis B: Environmental 73 \(1-2\)](#), pp. 60-64.
- Carja, G., Chiriac, H., Lupu, N. - New magnetic organic-inorganic composites based on hydrotalcite-like anionic clays for drug delivery, 2007; [Journal of Magnetism and Magnetic Materials 311 \(1 SPEC. ISS.\)](#), pp. 26-30.
- Carja, G., Obata, H., Kameshima, Y., Okada, K. - The textural properties of iron substituted hydrotalcites obtained in a tailored aqueous-organic synthesis medium, 2007; [Microporous and Mesoporous Materials 98 \(1-3\)](#), pp. 150-155.
- Ciobanu, G., Carja, G., Apostolescu, G., Taraboanta, I. - Structural, electrical and optical properties of thin ZnO films prepared by chemical precipitation, 2006; [Superlattices and Microstructures 39 \(1-4\)](#), pp. 328-333.
- Carja, G., Niiyama, H. - From the organized nanoparticles of copper and vanadium containing LDHs to the small nanoparticles of mixtures of mixed oxides: A simple route, 2005; [Materials Letters 59 \(24-25\)](#), pp. 3078-3080.
- Carja, G., Nakamura, R., Niiyama, H. - Tailoring the porous properties of iron containing mixed oxides for As (V) removal from aqueous solutions, 2005; [Microporous and Mesoporous Materials 83 \(1-3\)](#), pp. 94-100.
- Carja, G., Delahay, G., Signorile, C., Coq, B. - Fe-Ce-ZSM-5 a new catalyst of outstanding properties in the selective catalytic reduction of NO with NH₃, 2004; [Chemical Communications 10 \(12\)](#), pp. 1404-1405.
- Carja, G., Delahay, G. - Mesoporous mixed oxides derived from pillared oxovanadates layered double hydroxides as new catalysts for the selective catalytic reduction of NO by NH₃, 2004; [Applied Catalysis B: Environmental 47 \(1\)](#), pp. 59-66.
- Carja, G., Nakamura, R., Aida, T., Niiyama, H. - Mg-V-Al mixed oxides with mesoporous properties using layered double hydroxides as precursors: Catalytic behavior for the process of ethylbenzene dehydrogenation to styrene under a carbon dioxide flow, 2003; [Journal of Catalysis 218 \(1\)](#), pp. 104-110.
- Carja, G., Nakamura, R., Niiyama, H. - Copper and iron substituted hydrotalcites: Properties and catalyst precursors for methylamines synthesis, 2002; [Applied Catalysis A: General 236 \(1-2\)](#), pp. 91-102.
- Carja, G., Nakamura, R., Aida, T., Niiyama, H. - Textural properties of layered double hydroxides: Effect of magnesium substitution by copper or iron, 2001; [Microporous and Mesoporous Materials 47 \(2-3\)](#), pp. 275-284.