

Javier Pérez Carvajal

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PhD in Materials Science (Chemistry) at the Universidad Autónoma de Madrid (UAM)/
Materials Science Institute of Madrid (ICMM-CSIC).

<i>Title of qualification awarded</i>	<i>Institution</i>
Licenciado in Chemistry (BSc)	Universidad de Zaragoza
Certificate of Education Aptitude	Universidad de Zaragoza
Advanced Technician in Occupational Risks Prevention (Master - Health and Safety)	Aragon Chemistry Business Foundation (FEQPA)
Master Nanostructured materials and Nanotechnology (MsC)	Universidad de Zaragoza

Most relevant publications

- i) Avci-Camur, C., J. Troyano, **J. Pérez-Carvajal**, A. Legrand, D. Farrusseng, I. Imaz and D. MasPOCH (2018). "Aqueous production of spherical Zr-MOF beads via continuous-flow spray-drying." Green Chemistry.
- ii) Avci, C., I. Imaz, A. Carné-Sánchez, J. A. Pariente, N. Tasios, J. Pérez-Carvajal, M. I. Alonso, A. Blanco, M. Dijkstra and C. López (2018). "Self-assembly of polyhedral metal–organic framework particles into three-dimensional ordered superstructures." Nature chemistry 10(1): 78. 2017
- iii) Rodríguez-San-Miguel, D., A. Yazdi, V. GuillerM, J. Pérez-Carvajal, V. Punter, D. MasPOCH and F. Zamora (2017). "Confining functional nanoparticles into colloidal imine-based COF spheres by a sequential encapsulation-crystallization method." Chemistry-A European Journal.
- iv) Garzón-Tovar, L., J. Pérez-Carvajal, I. Imaz and D. MasPOCH (2017). "Composite Salt in Porous Metal-Organic Frameworks for Adsorption Heat Transformation." Advanced Functional Materials 27(21).
- v) Rodríguez-Hermida, S., M. Y. Tsang, C. Vignatti, K. C. Stylianou, V. GuillerM, J. Pérez-Carvajal, F. Teixidor, C. Viñas, D. Choquesillo-Lazarte and C. Verdugo-Escamilla (2016). "Switchable Surface Hydrophobicity–Hydrophilicity of a Metal–Organic Framework." Angewandte Chemie International Edition 55(52): 16049-16053.

- vi) Xu, H., S. Rodríguez-Hermida, J. Pérez-Carvajal, J. Juanhuix, I. Imaz and D. Maspoch (2016). "A First Cyclodextrin-Transition Metal Coordination Polymer." Crystal Growth & Design **16**(10): 5598-5602.
- vii) Aríñez-Soriano, J., J. Albalad, J. Pérez-Carvajal, I. Imaz, F. Busqué, J. Juanhuix and D. Maspoch (2016). "Two-step synthesis of heterometallic coordination polymers using a polyazamacrocyclic linker." CrystEngComm **18**(22): 4196-4204.
- viii) Aríñez-Soriano, J., J. Albalad, C. Vila-Parrondo, J. Pérez-Carvajal, S. Rodríguez-Hermida, A. Cabeza, J. Juanhuix, I. Imaz and D. Maspoch (2016). "Single-crystal and humidity-controlled powder diffraction study of the breathing effect in a metal–organic framework upon water adsorption/desorption." Chemical Communications **52**(45): 7229-7232.
- ix) Pérez-Carvajal, J., P. Aranda, S. Obregón, G. Colón and E. Ruiz-Hitzky (2016). "TiO₂-clay based nanoarchitectures for enhanced photocatalytic hydrogen production." Microporous and Mesoporous Materials **222**: 120-127.
- x) Jackson, E., M. Ferrari, C. Cuestas-Ayllon, R. Fernández-Pacheco, J. Perez-Carvajal, J. M. de la Fuente, V. Grazú and L. Betancor (2015). "Protein-templated biomimetic silica nanoparticles." Langmuir **31**(12): 3687-3695.
- xi) Ruiz-García, C., J. Pérez-Carvajal, A. Berenguer-Murcia, M. Darder, P. Aranda, D. Cazorla-Amorós and E. Ruiz-Hitzky (2013). "Clay-supported graphene materials: application to hydrogen storage." Physical Chemistry Chemical Physics **15**(42): 18635-18641
- xii) Ruiz-García, C., R. Jiménez, J. Pérez-Carvajal, A. Berenguer-Murcia, M. Darder, P. Aranda, D. Cazorla-Amorós and E. Ruiz-Hitzky (2014). "Graphene-clay based nanomaterials for clean energy storage." Science of Advanced Materials **6**(1): 151-158.
- xiii) Perez-Carvajal, J., P. Aranda, A. Berenguer-Murcia, D. Cazorla-Amorós, J. n. Coronas and E. Ruiz-Hitzky (2013). "Nanoarchitectures based on layered titanosilicates supported on glass fibers: Application to hydrogen storage." Langmuir **29**(24): 7449-7455
- xiv) Pérez-Carvajal, J., P. Lalueza, C. Casado, C. Téllez and J. Coronas (2012). "Layered titanosilicates JDF-L1 and AM-4 for biocide applications." Applied Clay Science **56**: 30-35.

Participation as collaborator in international or national research projects

- i) 2015-2018 **Recognized researcher** ERC-Co 615954 EU-FP7
INSTITUT CATALA DE NANOTECNOLOGIA
Leader: Prof. D. Maspoch
- ii) 2012-2016. **First-stage researcher** "Design and control of hybrid organic-inorganic interfaces: a further step towards advanced functional materials", EUFP7-COST.
Coordinator: Dr. M.H. Delville CNRS-Université Bordeaux (France); Leader at the ICMM-CSIC: Dr. P. Aranda.

- iii) 2013-2015. **First-stage researcher** “Materiales porosos, híbridos y bio-híbridos nanoestructurados basados en silicatos (NANOSIL)”. CICYT, MAT2012-31759. Leader: Prof. Eduardo Ruiz-Hitzky, ICMN, CSIC.
 - iv) 2010-2012. **First-stage researcher** “Nuevos materiales híbridos y bio-híbridos nanoestructurados basados en sólidos porosos de naturaleza silícica para aplicaciones avanzadas”. CICYT, MAT2009-09960. Leader: Prof. Eduardo Ruiz-Hitzky, ICMN, CSIC.
 - v) 2007-2009. **First-stage researcher** “Síntesis de zeolitas con láser”. CICYT, MAT2007-29254-E. Leader: Prof. Joaquín Coronas, ICMA- CSIC.
- International industry projects:**
- vi) "Adsorptive materials for big scale separation processes" (30 months). Süd-Chemie, (now Clariant - Germany) – CSIC Contract, Leader: Prof. Eduardo Ruiz-Hitzky, (2010-2011); Dr. Pilar Aranda (2011-2014).
 - vii) "Characterization and application test of synthetic clay" (5 months). Company ShayoNano Singapore Pte Ltd-CSIC Contract, Leader: Dr. Pilar Aranda, 2008-2010.

Presentations to peer reviewed internationally established conferences and international advanced schools:

- i) Composite salt in porous metal-organic frameworks for adsorption heat transformation
J. **Pérez-Carvajal**, L. Carlos Garzón-Tovar, I. Imaz, D. Maspoch
- Novel photonic nanosensor integrating MOFs as specific receptors for gas sensing.
B. Chocarro-Ruiz, J. **Pérez**, C. Avci, L. Lechuga D. Maspoch
- Solid-Gas Phase Post-Modification of Metal-Organic Frameworks through Ozonolysis. H. Xu, J. Albalad, J. **Pérez**, I. Imaz, D. Maspoch.
- Conference on Metal Organic Frameworks and Porous Polymers (EUROMOF 2017Delft (The Netherlands). 2017Conference on Metal Organic Frameworks and Porous Polymers (EUROMOF 2017)
- iii) Anatase nanostructured films templated on organic-silicon wafer interface
Oral Communication
Perez-Carvajal, J.; Aranda, P., Boissiere, C.; Sanchez, C., Ruiz-Hitzky, E
HINT Meeting: Nanostructured Hybrid Materials II: reinforced 3D structures, smart composites, self-healing – Crete 2015
- ii) Pd/Pt-anatase@clay nanoarchitectures for photocatalytical hydrogen production.
Oral Communication, Invited presentation
Perez-Carvajal, J; Aranda, Obregon, S, Colon, G, P Ruiz-Hitzky, E
Jornada Científica de la Sociedad Española de Arcillas (SEA) -**Toledo 2014**
- iii) Nanoarchitectonics based on glass fibers coated with nanoparticles
Poster Communication
Perez-Carvajal, J; Aranda, P Ruiz-Hitzky, E

- XVII *International Sol-gel Conference Solgel* - **Madrid** 2013
- iv) The production of supported graphenes from caramel on clay interfaces: synthesis and textural properties
Poster Communication
Pérez-Carvajal, J, Ruiz-García, C., Berenguer-Murcia, A., Darder, M., Aranda, P., Cazorla-Amorós, D., Ruiz-Hitzky, E.
The interface in hybrid and biohybrid materials: role and characterization (*HINT-COST*) **Madrid** 2013
- v) **Invitation to advanced training school:**
Nanoarchitectures based on layered titanosilicates integrated on glass-fiber as support for hybrid interfaces
Poster Communication
Pérez-Carvajal, J; Aranda, P, Berenguer-Murcia, A; Cazorla-Amoros, D; Coronas, J; Ruiz-Hitzky, E.
Rational design of hybrid organic-inorganic interfaces: the next step towards advanced functional materials (*HINT-COST*) – **Bordeaux** 2013
- vi) Layered titanosilicates (JDF-L1 and AM-4) for biocide applications
Poster Communication
Pérez-Carvajal, J, Lalueza, P, Casado, C, Coronas, J.
Jornada Científica de la Sociedad Española de Arcillas (*SEA*) -**Madrid** 2011
- vii) **Invitation to advanced training school:**
Layered titanosilicates for biocide applications
Poster Communication
Pérez-Carvajal, J, Lalueza, P, Casado, C, Coronas, J.
Synthesis of hybrid organic-inorganic nanoparticles for innovative nanostructured composites *COST* - **Naples** 2011
- viii) Síntesis de Zeolitas (Silicalita-1) sobre Sustratos Tratados con Láser
Poster Communication
Pérez J.; Quijano, L; Lahoz, R; Mateo, E; de la Fuente, X.; Coronas, J.
3a Jornada de Jóvenes Investigadores de Aragón, en Química y Física – **Zaragoza** 2008