CURRICULUM VITAE

# Dr. Samuel Sánchez Ordóñez
# Ph.D.-Chemistry

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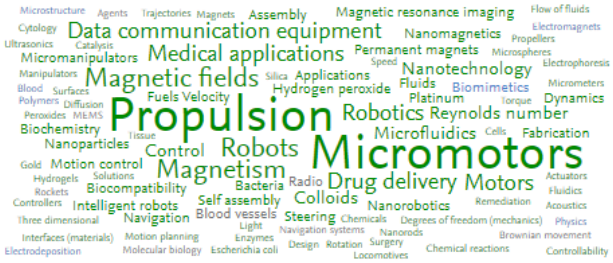
Researcher ID: B-6803-2015
Date of birth: May 15th, 1980/ Terrassa, Spain.
Nationality: Spanish
Father of two kids (12 and 7)
web sites: http://www.ibecbarcelona.eu/nanodevices
https://www.icrea.cat/Web/ScientificStaff/samuel-sanchez-ordonez-578
http://www.is.mpg.de/15762527/2015




## SHORT SUMMARY

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|---|---|---|---|
| **122 research papers** | **8450 (Google Scholar)** | **6 patents** | **24 cover pages +160 media appear.** |
| ***h*-index: 47 (Google Scholar)** | **+ 115 invited talks** | **+ 4,5 M€ attracted.** | **Prestigious Awards as Young Scientist and Innovator** |

I hold a joint appointment as full Research Professor at the Institute for Bioengineering of Catalonia (IBEC) and the Institució Catalana de Recerca i Estudis Avançats (ICREA) in Barcelona (Spain), being until last year the youngest ICREA Professor (highest research position in the Catalan research system) of the more than 250 ICREA Professors. Currently I am leading the "Smart Nano-Bio-Devices" group, composed by 18 scientists working in the multidisciplinary field of nanosciences with focus on self-powered micro- and nano-robots, integrated biosensors, microfluidics, physics of active matter, drug delivery systems and 3D Bio-printed soft robotics.

**Previous steps:**
After my **PhD** (Autonomous University of Barcelona, June 2008), I moved as an **independent postdoc -tenure-track-** at the International Center for Young Scientists at NIMS, Japan (2009-2010). There, I radically changed my research topic from biosensors to catalytic nanomachines, a striking leap from my supervisor's project. In May 2010, I became **Group Leader** at the Institute for Integrative Nanosciences (IIN), IFW Dresden (2010-2013). After receiving the ERC StG, I received an offer to become **Group Leader** at the Max Planck for Intelligent Systems where I consolidated my scientific independence and my group grew up to 10 members.

**EDUCATION**

| | | | |
|---|---|---|---|
| **11.2016** | **Executive Education Focus Program,** | IESE Business School, Barcelona, Spain | Developing Leadership Competencies |
| **06.2008** | **PhD in Chemistry** | **Universitat Autònoma de Barcelona** | **Chemistry "Electrochemical nanobiosensors"** |
| **09.2005** | Master of Science | Universitat Autònoma de Barcelona | Chemistry: "Electrochemical Immunosensors" |
| **03.2003** | Bachelor | Universitat Autònoma de Barcelona | Chemistry |

**PROFESSIONAL SCIENTIFIC EXPERIENCE**

| Period | Institution | Position | City, Country |
|---|---|---|---|
| **Since 1.2019** | **Institute for Bioengineering of Catalonia (IBEC)** | **Deputy Director for the Internationalization of IBEC** | **Barcelona, Spain** |
| **Since 1. 2019** | **Harbin Institute for Technology** | **Pengcheng Honorary Visiting Professor** | **Shenzhen, China** |
| **Since 6.2017** | **Barcelona Institute for Science and Technology (BIST)** | **Group Leader** | **Barcelona, Spain** |
| **Since 1.2015** | **Catalan Institute for Research and Advanced Studies (ICREA)** | **Research Professor** | **Barcelona, Spain** |
| **Since 1.2015** | **Institute for Bioengineering of Catalonia (IBEC)** | **Senior Group Leader** | **Barcelona, Spain** |
| 09.2013-12.2017 | Max Planck Institute for Intelligent Systems | Independent Research Group Leader<br>Mentor : Prof. Dr. Dietrich | Stuttgart, Germany |
| 05.2010 -08.2013 | Leibniz Institute for Solid State and Materials Research Dresden | Group Leader and ERC group Head<br>**Director : Oliver G. Schmidt** | Dresden, Germany |
| 02.2009-04-2010 | International Center for Young Scientists, | Independent Scientist | Tsukuba, Japan |

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|---|---|---|---|
| | National Institute for Materials Science | Tenure-track position<br>**Mentor : Martin Pumera** | |
| 06.2008-02.2009 | Universitat Autònoma de Barcelona | Associate Professor, Analytical Dept. | Bellaterra, Spain |
| 09. 2005-06.2008 | Universitat Autònoma de Barcelona Analytical Chemistry Department | PhD Student, Assistant Professor, | Bellaterra, Spain |
| 07.2007-10.2007 | International Center for Young Scientists, National Institute for Materials Science | Guest Scientist (student fellowship) | Tsukuba, Japan |
| 09.2003-09.2005 | Universitat Autònoma de Barcelona | Assistant Professor, Analytical Chemistry Department | Bellaterra, Spain |
| 03.2003-09.2003 | Universitat Autònoma de Barcelona | Assistant Professor, Organic Chemistry Dept. | Bellaterra, Spain |
| 10.2002-03.2003 | University of Twente | Guest Scientist<br>Inorganic Chemistry | Enschede, The Netherlands |

**PROJECTS AS PRINCIPAL INVESTIGATOR**

| Funding body | Title of the Project | Duration | Amount |
|---|---|---|---|
| **Lipotec S.A.U.** | *Confidential* | 2019-2020 | *Confidential* |
| **Lipofoods S.L. U** | *Confidential* | 2019 | *Confidential* |
| **Fundación Banco Bilbao Vizcaya Argentaria** | MEDIROBOTS: Medical micro- and nano-Robots for Molecular Imaging | 2018-2020 | 125.000€ |
| **European Research Council (ERC-PoC)** | Lab-PATCH | 2018-2019 | 150.000€ |
| **Ministerio de Economia y Competitividad (Spain)** | Enzyme-powered nano-motors from mesoporous silica nanoparticles | 2017-2018 | 50.000€ |
| **Ministerio de Economia y Competitividad (Spain)** | Sistemas Lab-on-a-Chip baados en micro-nanomotores para el diagnóstico de enfermendades | 2016-2018 | 111.000€<br>+<br>88.250€ for personnel |

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| **Volkswagen Foundation** | 3st International Workshop on Micro-Nanomotors: Challenges and Perspectives | 2016 | 60.000€ |
| **European Research Council (ERC-PoC)** | Active Micro Cleaners for Water Remediation | 2016-2018 | 150.000€ |
| **Volkswagen Foundation** | 2st International Workshop on Micro-Nanomotors: Challenges and Perspectives | 2014 | 50.000€ |
| **Volkswagen Stiftung** | Symposium "Micro- and Nanomachines 2014" | 2014 | 51.000€ |
| **European Research Council (ERC Starting Grant)** | Lab-in-a-tube and Nanorobotic Biosensors | 2013-2018 | 1.500.000€ |
| **German Research Foundation (DFG)** | Motion of chemically active objects in confined spaces | 2012-2014 | 340.000€ |
| **Volkswagen Foundation** | 1st International Workshop on Micro-Nanomotors: Challenges and Perspectives | 2012 | 26.000€ |
| **Volkswagen Foundation** | Rolled-up integrative bioanalytic microsystem for single cell and biological applications | 2012-2015 | 706.000€ |
| **Materials Nanoarchitectonics, (MANA), Japan** | Guest visit abroad: Self-propelled microjets | 09.2009-12.2009 | 10.000€ |
| **International Center for Young Scientists (ICYS), Japan** | Nanomotors | 2009-2010 | 50.000€ |
| | | **TOTAL:** | **3.477.250 €** |

## AWARDS and RECOGNITIONS

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|---|---|---|
| **11.2018** | Best Poster Award by Science Robotics Journal for 3D BioActuators | MRS Fall Meeting, Boston, USA |
| **09.2017** | ERC Proof-of-Concept Grant for "Lab-in-a-Patch" | European Research Council |
| **10.2017** | Guinness ® World Record: smallest tubular man-made jet engine | Guinness World Record ® |
| **8.2017** | Best Poster Award | Micro-Nanomachines International Conference, Wuhan, China |
| **1.2017** | Scientific Advisory Board | Lab on Chip Journal from the Royal Society of Chemistry |
| **12.2016** | National Research Award Young Talent2016 | Generalitat de Catalunya and the Catalan Foundation for Research and Innovation (FCRi). |
| **6.2016** | Advisory Board Member | Princess of Girona Foundation (Spanish King's Foundation) |
| **2.2016** | ERC Proof-of-Concept Grant for "Microcleaners" | European Research Council |
| **5.2016** | TEDx Talk "Nanorobots" | Tarragona, Spain |

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|---|---|---|
| **03.2016** | "Relevant young person for the society" Award 2016 | Círculo Ecuestre. (sponsored by IESE Business School, Google and Chivas the Venture) |
| **12.2015** | Best Poster Award | NanoToday Conference, Dubai |
| **1.2016** | Advisor of Educational National Program | Working Group Education Princess of Girona Foundation |
| **07.2015** | Innovator Europe Under 35 | MIT TR35 Technology Reviews |
| **06.2015** | Scientific Research Award 2015 | Princess of Girona Foundation |
| **01.2015** | Selected Emerging Investigators Special Issue | Chem Communications Journal |
| **01.2015** | Future Leaders in Nano-architectonics | Sci.Tech.Adv.Mater. Journal |
| **10. 2014** | '. Best poster award to J. Katuri Self-propelled particles in confined spaces | nternational Conference on Frontiers in Nano Science, Technology and Applications Prashantinilayam, India |
| **09.2014** | MIT Technology Review 2014 Award: Top 10 Spanish Innovator under 35. "Innovator of the year" | MIT Technology Review |
| **06.2013** | Sponsored by Volkswagen Foundation: Participants attend only upon invitation and costs are paid by the sponsor. | Nobel Laureate Meeting-Chemistry. Lindau, Germany |
| **12.2012** | Best poster Award. Award of 500€ | 1st Herrenhäuser conference "Downscaling Science". Hannover, Germany |
| **07.2012** | ERC Starting Grant (10% success rate) | European Research Council |
| **01.2012** | Our record was (from 09.2010) selected to be in the Guinness Book of Records 2012. | Guinness Book of Records |
| **10.2011** | IFW-IIN Research Prize: Outstanding scientist in 2011 | Leibniz Institute for Solid State and Materials Research Dresden (IFW), Germany. |
| **09.2010** | Guinness World Record ® for the "Smallest Man-Made Jet Engine". | Guinness World Records |
| **09.2009** | Materials Nano-architectonics (MANA) grant for 3 months as guest scientist in IFW. | Tsukuba, Japan |
| **08.2007** | Mobility fellowship BE-2007 for 3 months. Host: National Institute for Materials Science, Japan. | Generalitat de Catalunya |
| **08.2002** | Erasmus fellowship for 5 months. Host: University of Twente, the Netherlands | EU-Spanish government |

## PATENTS

**1.** Multifunctional enzyme nanomotors for biomedical applications.
Patent number: EP183828961
Date: December 2018
Inventors: S. Sánchez, A. C. Hortelao, T.Patiño
Applicant: IBEC/ICREA

**2.** Portable multistage device for micromotors assisted water treatment for organic, heavy metal, microorganisms' removal.
Patent number: FO4616ES00 (internal Patent European Attorney number)
Date: 15.04.2018
Inventors: S. Sánchez, J. Parmar, D. Vilela, K. Villa
Applicant: IBEC/ICREA

**3.** Method for positioning e.g. sensors in micro-electro-mechanical system, involves positioning microstructure elements within frame located on or below platform or between parts of frame, where parts of frame are extended over platform
Patent number: DE102012201713
Date: 6.02.2012

Inventors: S. Harazim, S. Sánchez, O.G. Schmidt.
Applicant: IFW Dresden

**4.** Method for manufacturing micro fluid system used in e.g. medical field, involves providing connecting element with respect to the position on the primary polymer layer
Patent number: DE102012201714
Date: 6.02.2012
Inventors: S. Harazim, S. Sánchez, O. G. Schmidt,
Applicant: IFW Dresden

**5.** Dispergatoren und Verfahren zur Abwasseraufbereitung. (Dispersants and methods for wastewater treatment)
Patent number: DE 10 2013202544.1
Date: 18.02.2013.
Inventors: L. Soler, V. Magdanz, S. Sánchez, O.G. Schmidt.
Applicant: IFW Dresden

**6.** Method of controlling the positioning of motile cells in liquid or gaseous media
Patent number: DE102012212427 and also WO2014012801. US Patent 20,150,164,554
Date: 23.01.2014 and 2018 for US.
Inventors: V. Magdanz, S. Sánchez, O.G. Schmidt.
Applicant: IFW Dresden

## ORGANISATION OF SCIENTIFIC MEETINGS

1. 2019 (Aug): International Conference on Micro-Nanomachines. Harbin, China. Organizing Committee
2. 2018 (Oct): IBERSensors conference. Bellaterra, Barcelona. Scientific Committee.
3. 2017 (Nov): "NanoBiomed conference". Barcelona Scientific Park, Barcelona, Spain. Scientific Committee. 150+ attendants.
2. 2017 (Aug.). International Conference of Micro- and Nanomachines. Wuhan, China. Scientific Committee: 200 attendants.
3. 2016 (Sept): Symposium "Biomedical Micro/Nanosystems Engineering". Max Planck Schloss Ringberg, Germany. Organizer. 44 attendants.
4. 2016 (Aug): International Workshop "BioNav16": Principles of Biological and Robotic Navigation. Dresden, Germany. Organizer. 50 attendants.
5. 2016 (Jun): International Conference "Micro-and Nano-Machines: chemical and biological nanomotors". Hannover, Germany. Organizer. 100 attendants.
6. 2015 (Sept): EUROMAT2015. Warsaw, Poland Topic Coordinator of Session A1.2: Active Soft Materials. 150 attendants.
7. 2015 (Apr): German-American Frontiers of Engineering Symposium GAFOE-2015. Potsdam, Germany. Organizing Committee of session: Nano to MicroRobotics. 80 attendants.
8. 2015 (Apr): MRS Spring meeting-Symposium. San Francisco, USA. Organizer of a Tutorial Session. Tutorial L: Bioinspired Micro- and Nanomachines and Devices. 150 direct attendants.
9. 2014 (July): International Conference "Micro-and Nano-Machines: Challenges and perspectives". Hannover, Germany. Organizer. 100 attendants.
10. 2012 (July): International Conference "Micro-and Nano-Machines: Challenges and perspectives". Dresden, Germany. Organizer. 48 attendants

## MEMBERSHIPS OF SCIENTIFIC SOCIETIES

2017- Member, Royal Society of Chemistry (RSC), in progress
2015 – Member, Materials Research Society (MRS)
2015 – Alexander von Humboldt: Humboldtian invited alumni. Germany.
2013 – Member, American Chemical Society (ACS)

## COMMISSIONS OF TRUST

2020 – ERC Panel Member for ERC-Starting Grant
2019 – International Advisory Board/ Advanced Intelligent Systems Journal/ Wiley/Germany.

2019 – Evaluator for Spanish Ministry for Ramón y Cajal Fellowships, Spain.
2019 – Jury for the International PhD Program for La Caixa Foundation, Spain.
2018 –Member of IGNITE evaluation panel; BIST/Barcelona/Spain
2017-2018- International Master's selection Committee, BIST/Barcelona/Spain
2017 – Evaluator. Research Foundation - Flanders (Fonds Wetenschappelijk Onderzoek Vlaanderen)
2017 – European Ambassador/ Innovators Under35, MIT Tech Reviews Innovator Award.
2016 – Scientific Advisory Board/ Lab on Chip Journal/ Royal Society of Chemistry, UK.
2016 – Advisory Board Member/Princess of Girona Foundation,/Girona/ Spain.
2016-2019 – Evaluator/ERC CoG and ERC AdvG/European Comission.
2015 – Member/ Committee of New Initiatives / Young Award Advisor/Circulo Ecuestre de Barcelona/Spain
2016 – Evaluator/ Czech Science Foundation/Czech Republic.
2016 – Evaluator/Referee PhD thesis. Nanyang Technological University, Singapore.
2015 – Evaluator/National Science Foundation/Singapore.
2015 – Evaluator/Board of Chemical Sciences (CW)/ Netherlands Organisation for Scientific Research (NWO)/ The Netherlands.

## MAJOR COLLABORATIONS from last 5 years

M. Sitti, Max Planck Institute for Intelligent Systems/Germany. Magnetic control of nanorobots.
F. Ricci, Uni Roma2/ Italy. DNA binding for biosensing with active nanoparticles.
M. Popescu, W. Uspal, Max Planck Institute for Intelligent Systems/Germany. Theory of active matter.
J. Llop, CIC BiomaGUNE/Spain. PET-CT imaging of microbots
E. Schäffer, University of Tübingen/Germany. Force measurements of Nanomotors using optical Tweezers
De la Zerda, P. Si, Stanford Medical School/USA. OCT imaging in vivo of nanomotors

## SELECTED TEACHING ACTIVITIES

| | |
|---|---|
| 2016 – 2019 | Invited Seminar Professor- Nanomotors, for Master in Nanoscience, Master in Biotechnology, Bachelors in Biotechnology/University of Barcelona/Spain. |
| 2016 – 2018 | Lecturer, Leadership in science/International Center for Leadership Development (ICLD)/CEDE Foundation/Spain |
| 2015– 2018 | Invited Professor, Nanomotors/ Autonomous Metropolitan University of Mexico/Mexico |
| 2010– 2013 | Invited Lecturer, Nanorobots and Art/ Science and Art summer school at California NanoSystem Institute (CNSI)/UCLA/ Los Ángeles, USA. (2010, 2012, 2013) |
| 2016 – 2018 | Assistant Professor-Analytical Chemistry, Chemistry for bachelor's degree in chemistry, Biology, Chemical Engineering./ Autonomous University of Barcelona/Spain. |

## REFEREEING ACTIVITIES

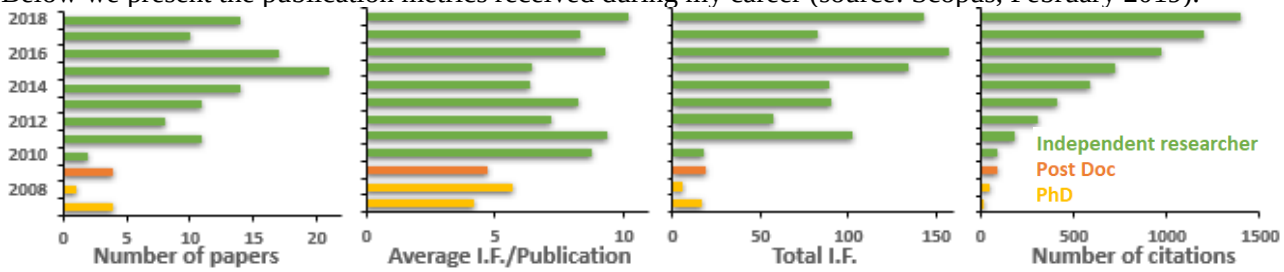
*Nature, Science, Science Robotics, Science Advances, Nat. Nanotech., Nat. Chem., Nat. Commun. PNAS, Chem. Rev., Chem.Soc. Rev., Nano Lett., Angew. Chem. Int. Ed., ACS Nano, J. Am. Chem. Soc, Lab Chip, Adv. Mat, and many more.*

## EDITORIAL ACTIVITIES

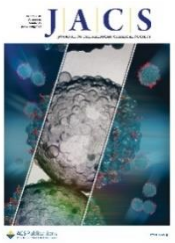
Focus Editor from Lab on Chip Journal, Associate Editor from J. Micro-Bio-Robotics, Guest Editor from IEEE Transactions on NanoBioSciences and Guest Editor for the Special Themed Issue "Self-Propelled Nano- and MicroSystems" in the Nanoscale Journal from RSC.

**PUBLICATIONS (only from 2010)**

Below we present the publication metrics received during my career (source: Scopus, February 2019).




Total **122 publications**, +100 as corresponding author, **8450 citations**,
**23 cover pages** (***h*-index 47**); -latest published one shown here-
**3 pub I.F.> 20** (*Chem. Soc .Rev, Acc. Chem. Res*);
**35 pub I.F.> 10** (*Sci.Adv. Nat.Comm., NanoLett. JACS, ACS Nano*, Angew.Chem.)
**85 pub**. I.F.> 5, (*Nanoscale, LabChip*, etc.)




**Quality and Impact:**

The quality and impact of the research carried is of the highest level according to the internationally accepted bibliometric indicators for the evaluation of the quality and impact of the scientific production. In particular, the Normalized Impact (used in the Scimago study) of the scientific production of in the period 2013-2016 is 5.98 respect to the global average value in his areas of scientific specialization, which is comparable to the most prestigious research centres and universities in the world.

**2019**

1. X. Arqué, A. Romero-Rivera, F. Feixas, T. Patiño, S. Osuna**, S.Sánchez.** Intrinsic Enzymatic Properties Modulate the Self-Propulsion of Micromotors *Nat. Commun.* **2019**, 10 (1), 2826.

**2.** L.Wang, A.C. Hortelao, X. Huang, **S. Sanchez.** Lipase-powered mesoporous silica nanomotors for triglyceride degradation. *Angew.Chem. Int.Edit.* **2019**, 131 (24) 8076-8080

**3.** T. Patino, A.Porchetta, A.Jannasch, A. Lladó, T. Stumpp, E. Schäffer, F. Ricci, **S.Sanchez**. Self-sensing enzyme-powered micromotors equipped with pH responsive DNA nanoswitches. *NanoLetters.* **2019**, 19, 6, 3440-3447. (Cover image )

**4.** R. Mestre, T. Patino, X. Barceló, S. Anand, A. Pérez-Jiménez**, S.Sánchez.** Force Modulation and Adaptability of 3D-Bioprinted Biological Actuators Based on Skeletal Muscle Tissue. *Adv. Mat. Techn.*, **2019**, 4 (2), 1800631. (Poster Award by Science Robotics)

**5.** L. S. Palacios Ruiz, J. Katuri, I. Pagonabarraga, **S. Sánchez**. Guidance of active particles at liquid-liquid interfaces near surfaces, *Soft Matter* **2019**, DOI: 10.1039/C9SM01016E

**6.** A.C. Hortelao, R. Carrascosa, N. Murillo-Creamaes, T. Patino, **S.Sánchez.** Targeting 3D Bladder Cancer Spheroids with Urease-Powered Nanomotors. *ACS Nano*, **2019**, 13 (1), 429-439. (appeared in El Periódico, La Vanguardia and more. System Patented)

7. W. Uspal, J. Katuri, M. Popescu, S. Sanchez. Distribution of tracer particles around a catalytic Janus particle. *Bulletin of the American Physical Society.* **2019**. APS March Meeting.

**2018**

8. T. Patiño, X. Arqué, R. Mestre, L. Palacios, **S.Sánchez.** Fundamental aspects of Enzyme powered Nanomotors. *Acc. Chem.Res.* May **2018** 51 (11), 2662-2671 (invited)

9. R Mestre, T Patiño, X Barceló, S Sanchez. 3D Bioprinted Muscle-based Bio-actuators: Force Adaptability due to training. *Conference on Biomimetic and Biohybrid Systems*, **2018**. 316-320

10. J. Parmar, D.Vilela, K. Villa, J.Wang, **S. Sánchez.** Micro- and Nanomotors as Active Environmental Microcleaners and sensors. *J.Am.Chem.Soc* **2018** 140 (30), 9317-9331 (invited review)
11. J. Katuri, David Caballero, R. Voituriez, J. Samitier, S. Sanchez. Directed flow of micromotors through alignment interactions with micropatterned ratchets. *ACS Nano* **2018**. 12 (7), 7282-7291
12. M.Xuan, R. Mestre, C. Gao, C. Zhou, Q. He, **S.Sánchez.** Non-Continuous Super-Diffusive Dynamics of Light-Activated Nanobottle Motor. *Angew. Chem.Int.Edit.* **2018,** 57 (23), 6838-6842
13. D. Vilela, U. Cossio, J. Parmar, A.M. Martínez-Villacorta, V. Gómez-Vallejo, J. Llop, **S. Sánchez.** Medical Imaging for the Tracking of Micromotors. *ACS Nano* **2018**, 12 (2), 1220-1227.
14. A. Romeo, A. Moya, T. S. Leung, G. Gabriel, R. Villa, **S. Sánchez.** Inkjet printed flexible non-enzymatic glucose sensor for tear fluid analysis. *App. Mat. Today.* **2018,** 10, 133-141.
15. J Katuri, WE Uspal, J Simmchen, A Miguel-López, **S Sánchez,** Cross-stream migration of active particles. *Science Advances* **2018,** 4 (1) eaao1755.
16. K. Villa, J. Parmar, D. Vilela, **S. Sánchez,** Highly efficient Fe/MnO2@MnCO3 catalyst for photo-Fenton-like degradation of 17a-ethynylestradiol hormone at near-neutral pH, *RSC Advances* **2018,** 8 (11), 5840-5847
17. K Villa, J Parmar, D Vilela, **S Sánchez**. Metal-oxide-based microjets for the simultaneous removal of organic pollutants and heavy metals. *ACS applied materials & interfaces* **2018**, 10 (24), 20478-20486
18. T Patiño, N Feiner-Gracia, X Arqué, A Miguel-López, A Jannasch, T. Stumpp, E. Schäffer, L. Albertazzi, **S.Sánchez.** Influence of enzyme quantity and distribution on the self-propulsion of non-Janus urease-powered micromotors. *J.Am.Chem.Soc* **2018,** 140 (25), 7896-7903
19. X. Wang, V. Sridhar, S. Guo, N. Talebi, A. Miguel-López, K. Hahn, P.A. Aken, **S. Sánchez.** Fuel-free Nanocap-Like Motors Actuated Under Visible Light. *Adv.Funct. Mat.* **2018** 28 (25), 1705862 (Invited paper, Special Issue on Nanomachines).
20. A. C. Hortelão, T. Patiño, A. Pérez-Jiménez, Á. Blanco, **S. Sánchez**. Enzyme-Powered Nanobots Enhance Anticancer Drug Delivery. *Adv. Funct. Mater.*, **2018**. 28 (25), 1705086 (Invited paper, Special Issue on Nanomachines).

**2017**

21. X. Ma and **S. Sánchez.** Self-propelling micro-nanorobots: challenges and future perspectives in nanomedicine *Nanomedicine*. **2017**, 12 (12), 1363-1367 (Invited Commentary)
22. M. M. Stanton and **S. Sánchez.** Pushing Bacterial Biohybrids to In Vivo Applications, *Trends in Biotechnology*. **2017**, 35, 10, 910-913 (Invited perspective)
23. J. Parmar, K. Villa, D. Vilela, **S. Sánchez,** Platinum-free Cobalt Ferrite based micromotors for antibiotic removal, *Applied Materials Today* **2017**, *9*, 605–611
24. M. M. Stanton, B-W Park, D. Vilela, K. Bente, D. Faivre, M. Sitti, **S. Sánchez,** Magnetotactic Bacteria Powered Biohybrids Target E. coli Biofilms, *ACS Nano*. **2017**. 11 (10), 9968–9978
25. D. Vilela, Ana C. Hortelao, K. Hahn and **S. Sánchez,** Facile Fabrication of Mesoporous Silica Micro-Jets with Multi-Functionalities. *Nanoscale*, **2017**, 9, 13990-13997.
26. D. Vilela, MM Stanton, J Parmar and **S. Sánchez**, Microbots decorated with silver nanoparticles kill bacteria in aqueous media. *ACS Appl. Mater. Interfaces* **2017**, *9*, 22093-22100.
27. M.M. Stanton, B.-W.Park, A. M.López, X. Ma, M. Sitti and **S Sánchez**. Biohybrid Microtube Swimmers Driven by Single Captured Bacteria . *Small*. **2017**, 2017, 13, 1603679
28. X. Ma and **S. Sánchez.** Bio-catalytic mesoporous Janus nano-motors powered by catalase enzyme. *Tetrahedron*, **2017**, 73, 4883-4886. (invited review in honour to Ben Feringa Nobel Prize)
29. J. Simmchen, Baeza A, Miguel-Lopez A, M.Stanton S, Vallet-Regi M, Ruiz-Molina D & S. **Sánchez,** 'Dynamics of Novel Photoactive AgCl Microstars and Their Environmental Applications', *ChemNanoMat* , **2017**, 3, 1, 65-71 (back cover)

30. J. Katuri, X. Ma, M. M Stanton, **S. Sánchez**, 'Designing Micro- and Nanoswimmers for Specific Applications', *Accounts of Chemical Research*, **2017**, *50* (1), 2–11 (Invited review, front Cover 50th Anniversary of the Journal)

**2016**

31. X. Ma, A. C. Hortelao, A. M. López & **S. Sánchez.** Bubble-Free Propulsion of Ultrasmall Tubular Nanojets Powered by Biocatalytic Reactions. *J. Am. Chem. Soc.* **2016** 138 (42), pp 13782–13785
32. X. Ma, Jang S, Popescu MN, Uspal WE, Miguel-Lopez A, Kersten H, Dong-Pyo K & **S. Sánchez**, 'Reversed Janus Micro/Nanomotors with Internal Chemical Engine', *Acs Nano*, **2016**,10, 9, 8751 - 8759.
33. J. Parmar, D. Vilela**, S. Sanchez**, 'Tubular microjets: Fabrication, factors affecting the motion and mechanism of propulsion', *The European Physical Journal Special Topics*, **2017**, 225, 11-12, 2255-2267. (Invited)
34. X. Ma, A. C. Hortelao, T. Patiño, and **S. Sanchez**. Enzyme-Catalysis to Power Micro/Nano-machines. *ACS nano*, **2016**. 10 (10), 9111-9122 (Front cover)
35. Wang Xi, Christine K Schmidt, **S. Sanchez**, David H Gracias, Rafael E Carazo-Salas, Richard Butler, Nicola Lawrence, Stephen P Jackson, Oliver G Schmidt; Molecular Insights into Division of Single Human Cancer Cells in On-Chip Transparent Microtubes. *ACS nano*, **2016**, 10 (6), 5835-5846.
36. Vilela, D., Parmar, J., Zeng, Y., Zhao, Y., **Sanchez, S.**, Graphene based microbots for toxic heavy metal removal and recovery from water. *Nano Letters* , **2016**, 16 (4), 2860–2866
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44. Diana Vilela, Agostino Romeo, **Samuel Sánchez**. Flexible sensors for biomedical technology. *Lab on a Chip*, **2016**, 16 (3), 402-408.
45. C. Maggi, J. Simmchen, F. Saglimbeni, J. Katuri, M. Dipalo, F.De Angelis, **S. Sanchez**, R. Di Leonardo. Self-Assembly of Micromachining Systems Powered by Janus Micromotors. *Small*, **2016**, 12 (4), 446-451.
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**2015**

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48. X.Ma, J. Katuri, Y. Zeng, Y. Zhao, **S. Sánchez.** Janus Micromotors: Surface Conductive Graphene-Wrapped Micromotors Exhibiting Enhanced Motion. *Small*, **2015**, 11 (38), 5023-5027.

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51. R. Arayanarakool, A. K. Meyer, L. Helbig, **S. Sanchez** and O. G. Schmidt. "Tailoring three-dimensional architectures by rolled-up nanotechnology for mimicking microvasculature". *Lab Chip,* **2015**, 15, 2981-2989.

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53. X. Ma, K. Hahn and **S. Sanchez**. "Catalytic Mesoporous Janus Nanomotors for Active Cargo Delivery". *J. Am. Chem. Soc.*, **2015**, 137, 4976-4979

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55. V. Magdanz, B. Koch, **S. Sanchez** and O.G. Schmidt. "Sperm dynamics in tubular confinement". *Small*, **2015**, 11, 781-785 (cover image)

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58. X. Ma and **S. Sanchez** "A bio-catalytically driven Janus mesoporous silica cluster motor with magnetic guidance". *Chemical Communications*, **2015**, 51, 5467-5470 (2015 Emerging Investigators)

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60. L. Wang and **S. Sánchez**. "Self-assembly via microfluidics" *Lab Chip*, **2015**,15, 4383-4386

61. M. M. Stanton, J. Samitier and **S. Sánchez.** "Bioprinting of 3D hydrogels". *Lab Chip*, **2015**, 15, 3111 – 3115

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**2013**

83. L. Soler, V. Magdanz, V. M. Fomin, **S. Sánchez,** O.G.Schmidt. "Self-propelled Micromotors Cleaning Polluted Water". *ACS Nano*. **2013**, 7, 961-9620.

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88. I. S. M. Khalil, V. Magdanz, **S. Sánchez**, O. G. Schmidt, L Abelmann, and S Misra, "Magnetic control of potential microrobotic drug delivery systems: nanoparticles, magnetotactic bacteria and self-propelled microjets", in *Proceedings of the IEEE Engineering in Medicine and Biology* Society (EMBC), July **2013,** 5299-5302.

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96. E. J. Smith, W. Xi, D. Makarov, I. Mönch, S. Harazim, V. A. Bolaños Quiñones, C. K. Schmidt, Y. Mei, **S. Sánchez**, O. G. Schmidt. "Lab-in-a-tube: ultracompact components for on-chip capture and detection of individual micro-/nanoorganisms". *Lab Chip* **2012**, 12, 1917.

97. S. Perez, **S. Sánchez** and E. Fábregas. "Enzymatic Strategies to Construct L-Lactate Biosensors Based on Polysulfone/Carbon Nanotubes Membranes" *Electroanal.* **2012**, 4, 967.

98. L. Baraban, D. Makarov, R. Streubel, I. Mönch, D. Grimm, **S. Sánchez**, O. G. Schmidt. "Catalytic Janus motors on microfluidic chip: deterministic motion for targeted cargo delivery" *ACS Nano* **2012**, 6, 3383.

99. A. Solovev, W. Xi, D. Gracias, S. M. Harazim, C. Deneke, **S. Sánchez** and O. G. Schmidt. "Self-propelled Nanotools". *ACS Nano*, **2012**, 6, 1751.

100. S. M. Harazim, W. Xi, C. K. Schmidt, **S. Sánchez** and O. G. Schmidt. "Fabrication and applications of large arrays of multifunctional rolled-up $SiO/SiO_2$ microtubes"**.** *J. Mat. Chem.* **2012**, 22, 2878. **(Front Cover February 2012)**

101. L. Baraban, M. Tasinkevych, M. N. Popescu, **S. Sánchez,** S. Dietrich and O. G. Schmidt. "Transport of cargo by Catalytic Janus Micro-motors". *Soft Matter*. **2012**. 8, 48.

**2011**

102. **S. Sánchez,** A. A. Solovev, S. M. Harazim, C. Deneke, Y. F. Mei and O. G. Schmidt. "The smallest man-made jet engines"**.** *Chem. Rec*. **2011**, 11, 3767. (invited)

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105. A. Solovev, E. J. Smith, C. C. Bof' Bufon, **S. Sánchez** and O. G. Schmidt. "Light-Controlled Propulsion of Catalytic Micro-Engines". *Angew. Chem. Int. Edt.* **2011**, *50*, 10875.

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**108.** Y.F. Mei, A. A. Solovev, **S. Sánchez** and O. G. Schmidt. "Rolled-up nanotech on polymers: from basic perception to self-propelled catalytic microengines". *Chem. Soc. Rev*. **2011.** 40, 2109-2119. **(Front cover May 2011, invited).**

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**111.** **S. Sánchez,** A.A. Solovev, S. Schulze and O.G. Schmidt, "Controlled manipulation of multiple cells using catalytic microbots". *Chem. Commun.* **2011**, 47, 698–700.

112. S. M. Harazim, P. Feng, **S. Sánchez**, Ch. Deneke, Y. F. Mei, O. G. Schmidt. "Integrated sensitive on-chip ion field effect transistors based on wrinkled InGaAs nanomembranes". *Nanoscale Res. Lett*. **2011**, 6, 215.

**2010**

113. **S. Sánchez,** A. A. Solovev, Y. F. Mei, O. G. Schmidt. "Dynamics of biocatalytic micro-engines mediated by friction control". *J. Am.Chem.Soc.* **2010** *132*, 13144–13145.

**114.** A.A. Solovev, **S. Sánchez,** M. Pumera, Y. F.Mei, O. G. Schmidt. "Magnetic control of Tubular Catalytic Microbots for the Transport, Assembly and Delivery of Microobjects". *Adv. Funct. Mat*. **2010,** 20, 2430. **(Inside Cover August 2010)**

**2007-2009:** 10 publications

## HIGHLIGHTS

- **Achievements highlighted in different media:** Digital Trends, Huffingtonpost, Watertechnology, Science Alert, Discoverynews; ABC, El Periódico, La Vanguardia, Tendencia 21, El Economista, ABC, EFE Futuro, El Día, Hoy, El País, El Mundo Financiero, Cadena Ser, El Periódico, La Razón, El Mundo – innovadores, El Periódico – Sociedad – Catalunya, (2/2014): Green Futures Magazine, Chemie.de, IHK Braunschweig, news.discovery.com, Phys.org, Deutschlandfunk, Gizmag. FOX News, Science for the Curious Discover, The Independent, New Scientist, Vice Media Inc., Le figaro – fr, FierceDrugDelivery, Tech Times. Nanowerk, Materials Gate, RSC Chemistry World, Mother Nature Network, Chemistry Views, Ingenieur.de, Phys.org, Pollution Solutions, Inovation Toronto, SciTech Daily, Innovations Report, GenesisNanoTech.
- **TV:** (09/2016) La2 – TIPs, (01/2016): Informativos, (06/2015) RTVE – LAB24 (03/2015) Informativos Tele 5; MDR Hier ab Vier, 11.3.2011, 17:40 and **Newspapers/Online** articles such as Newscientist (October, 2011), derStandard.at , LiLipuz, Blick.ch, Pro-Physik.de , Die Welt and Scinexx (March 9, 2011), Nanowerk (March 9, 2011; Sep 30, and Aug 3, 2010), Chemistry World (Nov 19, 2010), MaterialsViews (Nov 10, 2010), RSC Chemistry World (July 29, 2010), ChemViews Magazine (Aug 11, 2010).

- More than 50 newspaper articles, TV appearances, Radio and press release related to MIT TR35 and Princess of Girona award from 11.2014 until 07.2015.
- In total more than 160 appearances via different channels from 2015-2017. **The audience reached, just national (Spain) press is estimated in more than 3 Million persons according to Kantarmedia** (http://www.kantarmedia.com/es).
- **A full list of media and online links can be provided upon request.**

## COVERS of International Journals


## OUTREACH ACTIVITIES

- **Plenay Talk at Ateneu Maó,** Menorca, Spain. 5th April 2019
- Talk at High School center "Duc de Montblanc", Rubí.4th April 2019.
- **Setmana de la Ciència Plenary Talk**, Teatre La Sala de Rubí, 7th Novembre 2018, Rubí, Barcelona.
- **Public talk in collaboration with "Pint of Science"**, 16th May, Barcelona.
- **El Pais con tu Futuro.** Keynote and speach corner. Madrid, December 2017., El Pais.
- **Fundació Catalunya La Pedrera:** plenary talk during the celebration event of "Premis de Batxillerat" given to the best students from the Catalan system before entering the university. Samuel also gave in person the "Premis de Màster" and a plenary talk.
- **Bojos per la química:** Samuel gave a talk at the program "Bojos per la Química" at the ICIQ (Tarragona), a program from the same foundation. In addition, Samuel gave a round table-debate about "youth and talent" at the Pedrera House, in Barcelona.
- **Premi extraordinary de Batxillerat:** Currently, there are students visiting the Group's lab in a general basis every summer from the "Premi extraordinary de Batxillerat", who spend two-four weeks in our lab.
- **UAB:** Samuel was the "God-father" of the generation of PhD awardees, giving a plenary speech at the celebration of PhD certificates as Alumni.
- **NanoInventum:** Samuel gave a lecture at the FestNano Festival organized at CosmoCaixa building on Nanorobotics.
- **10alamenos9:** Plenary talk at the Library from Sagrada Familia.

- **Princess of Girona Foundation**: Samuel was involved as Advisory Board of an Educational Program "Educando Talento Emprendedor" and others related education for young kids. Talks about robotics and future technologies in "premiados y escuelas" programs.
- **CaixaForum:** I have given a talk at CaixaForum (Girona) to public viewing.
- **First Lego League**: I gave the opening talk at the final of the First Lego League in Logroño, in front of 2000 attendees. Also discussed with kids in the "speech corner".
- **Setmana de la ciencia:** Outreach talk for the public at the Scientific Park of Barcelona, organized by IBEC and PCB.
- **Joves i ciència.** Accepting one Student every summer for internship in our lab.

**THESIS SUPERVISED AS GROUP LEADER**

1. PhD Dissertation: Catalytic Tubular Microjet Engines

Dr. Alexander A. Solovev

03.2012. Physical Chemistry Department, Chemnitz University of Technology

Grade: Magna Cum Laude

2. PhD Dissertation: Rolled-up microtubes as components for Lab-on-a-Chip devices

Dr- Ing. Stefan M. Harazim

05.2012. Electrotechnic and Information Engineering Faculty, Chemnitz University of Technology

Grade: Magna Cum Laude

3. PhD Defense: Active colloids

Dr. Jaideep Katuri

09.2018. Faculty of Physics, University of Barcelona

Grade: Excellent Cum Laude

4. PhD Defense: Micromotors for Environmental Applications

Dr. Jemish Parmar

10.2018. Faculty of Physics, University of Barcelona

Grade: Excellent Cum Laude. **Awarded with the "Premi PIONER" from CERCA**

**PhD Thesis under supervision:**

2016-2020: Mr. Rafael Mestre, Faculty of Physics/Nanoscience, University of Barcelona.

2016-2020: Mrs. Ana C. Hortelao , Faculty of Physics/Nanoscience, University of Barcelona.

2017-2021: Mr. Xavier Arqué, Faculty of Farmacy/Biochemistry, University of Barcelona.

2017-2021: Mr. Lucas Palacios, Faculty of Physics/Physics, University of Barcelona.

**Master Theses finished:**

1. Adithya N. Ananth; Grade: 1.7 (1 max 5 minimum)

09. 2012. Master Nanobiophysics. Technische Universität Dresden

2. Laura Restrepo; Grade: 1.0 (1 maximum). Erasmus Mundus

09.2013. International Master Nanoscience and nanotechnology. Technische Universität Dresden

3. Jaideep Katuri; Grade: 1.3 (1 maximum)

12.2014. University of Stuttgart, Germany.

4. Varun Shridar; Grade: 1.7 (1 maximum). Erasmus Mundus Fellow.

11.2015. University- Technische Universitat Darmstadt. Germany

5. Azaam Aziz; Grade: 1.3 (1 maximum)

28.10.2015; Max Planck for Intelligent Systems and Fachhochschule Jena: 14.12.2015; Germany.

6. Xavier Arqué; Grade: 10/10

09. 2017. Faculty of Farmacy, University of Barcelona, Spain

7. Silvia Vicente Rizo; Grade: 9.7/10

07.2017. Faculty of Physics. University of Barcelona, Spain

8. Natalia Salvat; Grade 9.5/10

07.2018. Faculty of Physics. University of Barcelona, Spain

9. Xavier Barceló; Grade 10/10, Matrícula de Honor.
07.2018. Faculty of Physics. University of Barcelona, Spain
10. Carlos Martínez Martin; Grade 8.7/10
09.2018. Faculty of Biology. University of Barcelona, Spain
11. Ander Eguskiza; Grade 9.5/10
06.2018. Master's in pharmacy and Biotechnology. University Pompeu Fabra, Spain

**INVITED TALKS only for the last 5 years (2014-2019)**

1. 10.5.2019. Plenary Talk: Hybrid nanomotors: bioengineered active nano-systems powered by enzymes Opening Symposium B-Cube Dresden, Germany
2. 7.5.2019. Invited Seminar: Active nanoparticles in fluids. University of Tübingen, Germany.
3. 3.5. 2019. Invited ERC-Seminar: Nanobots to 3D BioBots as future tools in robotics and medicine Brussels, Belgium.
4. 2. 2019. Nanorobots para nuevas terapias y limpieza de agua. Biennal Ciutat I Ciència. La Pedrera, Barcelona, Spain
5. 28.11.2018. Oral talk: Bioengineering hybrid machines: from Nanobots to 3D Biobots. MRS Fall Meeting, Boston, USA
6. 22.11. 2018 Keynote talk. Bioengineering hybrid machines for nanomedicine and soft robotics/NanoBioMedConf, Barcelona, Spain
7. 13.09.2018. Invited Seminar: Enzyme powered nanomotors from fundamentals to drug delivery. ICMS at TU Eindhoven, The Netherlands.
8. 1.08. 2018. Keynote talk: Nanorobots as future tools in nanomedicine (and more)/London International Youth Science Forum (LIYSF), London, UK.
9. 28.5.2018. Invited Talk: Engineering Hybrid Machines: from nanobots to 3D BioBots. Molecular Machines workshop. Columbia University, New York City, USA.
10. 25. 05.2018. Invited Seminar: Synthetic multifunctional Nanoswimmers/ Synthetic Biogoly Lab/Massachusets Institute of Technology/USA
11. 01.02 2018. Invited Seminar: Artificial Nanoswimmers as future tools in nanomedicine/ Stanford Medical School, Molecular Imaging Program at Stanford (MIPS) Department, San Francisco, USA
12. 01.2018. Panel Chair talk: Fundamentals of active particles. Aspen School of Physics. Aspen, USA.
13. 21.12.2017. Invited talk: Nanorobots. El Pais con tu futuro, Kinepolis, Madrid.
14. 15.12.2017. Plenary talk: The chemistry and the materials of Micro-/Nano-machines Dept. Mat. Sciences, Physical, Organic and Inorganic Chemistry, University of Barcelona, Spain
15. 23.11.2017. Keynote talk: Nanorobots and their future in NanoBiomedicine II Congreso Nacional de Jóvenes Investigadores en Biomedicina., Valencia, Spain
16. 22.11.2017. Keynote talk: Enzyme Catalysis to Power Nanovehicles Towards Nanomedicine NanoBio&Med Conf., Barcelona, Spain
17. 29.9.2017. Keynote talk: Hybrid [Micro- and Nano-machines] towards their applications in [Nanomedicine] Nanomedicine Summer School, Hospital Vall Hebron, Barcelona, Spain
18. 14.9.2017. Keynote talk: Biohybrid [Robotic] Systems: Learning From Nature. Workshop Chem BioNano, CSIC, Barcelona, Spain
19. 26.8.2017. Invited talk: Chemically and Biologically Powered [Micromachines]. International Conference on Nano-Micro-Machines, Wuhan, China
20. 8.7.2017. Seminar: Chemically engineered structures for micromotors. Institut Català d`Investigació Química (ICIQ) Tarragona, Spain
21. 8.7.2017. Invited talk: Química en movimiento: Energía química para propulsar NanoRobots Bojos per la Química, Tarragona, Spain
22. 7.7.2017. Plenary talk: [NanoRobots] and their potential applications in biomedicine. Institut d'Investigació Sanitària Pere Virgili (IISPV) , Reus, Spain
23. 14.6.2017. Seminar: Chemically engineered architectures for [nanomotors] Radboud University, Nijmegen, The Netherlands.

24. 11.7.2017. Opening talk: Samuel and Nanorobots, a Fantastic Voyage
    BIYSC, La Pedrera House, Barcelona Spain.
25. 13.6.2017. Plenary talk: Biohybrid [Robotic] Systems: Learning From Nature
    Jornades de Biologia Molecular, Barcelona, Spain.

26. 9.6.2017. Plenary talk: Powering tiny particles with catalysis: [ self-powered nanomachines]. EChems Conference. Milano Maritima, Italy.
27. 3.5.2017. Keynote talk: Nanorobots for biomedical and environmental applications. Catalan Society of Chemistry, Barcelona, Spain
28. 5.4.2017. Invited talk: Experimentando un viaje alucinante
    International Center for Leadership Development (CEDE) (Spain (Catalonia))
29. 12.12.2016. Seminar: Nanomáquinas, ciencia ficción o realidad
    Universidad Autónoma Metropolitana (UAM), Mexico (Mexico)
30. 22.11.2016. Invited talk: Chemical Nanomachines as active drug nanovehicles
    Bionanomed 2016, Barcelona (Spain)
31. 9.11.2016. Invited talk: Nanomicrorobots what for
    Universitat Pompeu Fabra, Barcelona (Spain)
32. 2.11.2016. Invited talk: Enzyme powered nanomachines: Science fiction or reality
    University of Rome Tor Vergata / Roma (Italy)
33. 27.10.2016. Opening talk/Master of ceremony. MIT Innovators U35 Awards/Madrid (Spain)
34. 6.10.2016. Invited talk: La ciencia, un viaje alucinante. Master of Excelence Awards of Fundació Catalunya-La Pedrera, Barcelona (Spain)
35. 22-23.9.2016. Invited talk: Nanobots: catalysis powered nanoparticles. Colloquium at the Royal Academy of Sciences, Amsterdam, The Netherlands.
36. 15.7.2015. Keynote: Nanorobots: smart self-powered nanoparticles towards biomedical applications
    GABBA International Conference 2016. Porto, Portugal
37. 28.5.2016. TED Talk: Nanorobots. TEDx Plaça del Fòrum, Tarragona, Spain
38. 15.04.2016. Public Talk: Nanorobots: esos diminutos submarinos que nos ayudarán en el futuro
    Caixa Forum, Girona, Spain
39. 8.4.2016. Opening Lecture: Cómo experimentar un viaje alucinante
    PhD award ceremony. Autonomous University of Barcelona, Spain.
40. 16.3.2016. Invited Talk: Cómo experimentar un viaje alucinante
    International Course on Leadership Development. Granada, Spain.
41. 01.03.2016. Lecture: Nano-Robots and Nano-Machines: how small can you dream them?
    Nano-Robots. Award ceremony Joven Relevante, Barcelona, Spain
42. 27-29.2.2016. Invited talk: Experiments on active matter at the micro- and nano-scale. International workshop Soft Matter at interfaces. Tegernsee, Germany.
43. 23.2.2016. Invited Lecture: Nanrobots: the future smart tools in medicine?. GABBA International PhD program. Porto, Portugal.
44. 19.2.2016. Invited Lecture: Fantastic Voyage: Back where everything started. Acte premis Catalunya-La Pedrera, Mont Sant Benet, Barcelona, Spain.
45. 11.2.2016. Lecture: Nanobots Relevantes. Círculo Ecuestre de Barcelona, Barcelona, Spain.
46. 27-19. 1. 2016. Invited talk: NanoBots for Medicine and more. Global Robots Expo. Madrid, Spain
47. 3-4.12.2015. Seminar: Engineering small self-powered nano-bio-devices. POSTECH/Chemical Engineering Department , Korea, Republic of (South Korea).
48. 1-2.12.2015. Seminar: Ultra-compact smart nano-bio-devices for (bio)sensing and nanorobotics
    POSTECH/Chemical Engineering Department , Korea, Republic of (South Korea).
49. 22-25.9.2015. Invited talk: Strategies for controlling and guiding catalytic micro-motors
    Gordon Conference Oscillations Instabilities in Chemical Systems, Stowe, USA
50. 21.9.2015. Summer School: Microswimmers based on tubular micro- and nanojets
    Jülich Forschungzentrum , Germany
51. 22-25.9.2015. 07.03.2016. Students residence Ramon Llull, University of Barcelona, Spain.
52. Lecture: Nanomachines. Summer School, Jülich, Germany

53. 22.9.2015 Highlight talk. Synthesis of chemically powered nanomotors. EUROMAT. Warsaw, Poland.
54. 7-11.9.2015. Keynote speaker: Nano-bots as future trends in nano-bio-medicine. TNT Conference. Toulouse, France.
55. 06.2015. Invited Appearance at MIT TR35 Germany representing Spanish innovators U35 2015, Berlin, Germany.
56. 22.6.2015 Invited talk: Engineering Chemical Micro-and Nanomotors. Engineering Chemical Complexity, Munich, Germany.
57. 27.5.2015. Plenary talk: Fantantic Voyage: where everything started. Jornades Doctorals, UAB Bellaterra, Spain
58. 22.5.2015. Invited talk: Active Colloidal micromotors. , ZCAM Conference, Zaragoza, Spain.
59. 16.5.2015. Invited Talk: Smart Nano-Bio-Devices. TAU-IBEC Symposium, Barcelona, Spain
60. 15.4.2015. Introductory Speaker: Nano-to Micro-Robotics. GAFOE Meeting, Potsdam, Germany.
61. 8.4.2015. Tutorial Lectures: Bio-inspired Micro-and Nanomachines. MRS Tutorial Spring Meeting. San Francisco, USA.
62. 9.12.2014. Colloquium: Lab-in-a-tube and Nanorobotics. Chemical Physics Faculty, Universität Stuttgart, Germany.
63. 1.12.2014 Invited talk: Chemically powered nanomotors: from simple actuation to collective behavior. Duplex Discussions Meeting, Tegernsee, Germany.
64. 13.11.2014. Keynote Speaker: Chemically powered nanorobots towards a “Fantastic Voyage” NanoBioMed Conference, Barcelona, Spain
65. 13.10.2014. Invited talk: Chemically powered Micro- and Nano-motors. Fluctuation of Complex Systems, Venice, Italy.
66. 23-25.9.2014. Keynote speaker: V Conference CIDIQ (Congreso Internacional de Química) Mexico DF, Mexico.
67. 15.09.2014. Keynote Invited talk: Bioinspired catalytic nanorobots: self-powered nano-bio-devices. Special Session at E-MRS.Warsaw, Poland.
68. 2.5.2014. Invited talk: Self-powered micromotors: origin of propulsion, motion control and potential applications. Soft Matter at Interfaces 2014, Tegernsee, Germany.
69. 21-25.04.2014. Oral talk: Multifunctional Micro-motors from self-folded films cleaning polluted water. MRS Spring Meeting 2014, San Francisco, USA.
70. 21-25.04.2014. Oral talk: A Versatile 3D Tubular Platform for Single Cell Analysis and Study MRS Spring Meeting 2014, San Francisco, USA.
71. 15.04.2014. Invited Lecture: Ultra-compact smart nano-bio-devices for (bio)sensing and nanorobotics Universidad Metropolitana de México Azcapotzalco. Ciudad de México, México,
72. 5-7.03.2014. Invited poster presentation: Catalytic micromotors. MANA International Symposium 2014.Tsukuba, Japan,
73. 3-4.03.2014. Invited talk: Artificial Nanomachines Materials Nanoarchitectonics (MANA) Reunion Workshop.Tsukuba, Japan.
74. 14.03.2014. Seminar: Smart Nanodevices in nanorobotics and bio-nano-engineering. Institut de Bioenginyeria de Catalunya (Ibec Barcelona).Barcelona, Spain.
75. 20.03.2014. Invited talk:Bridging cell biology, chemistry and microfluidics with engineered nanomaterials. Cfaed Festival. TU Dresden. Dresden, Germany.
76. 20.2.2014. Seminar: Catalytic Nanomotors for active transport in lab-on-chip devices. Department of Chemical Technology. TU Dresden. Dresden, Germany.
77. 11.02.2014. Seminar: Smart compact devices for bioapplications. University of Heidelberg. Heidelberg, Germany.
78. 14.11.2014. Seminar: Catalytic nanomachines: fundamentals and potential applications Department of “Theory of Inhomogeneous Condensed Matter”. Max Planck Institute for Intelligent Systems, Stuttgart, Germany,