

Curriculum Vitae of Dr. Olivier Sandre

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PubMed: [333445](https://pubmed.ncbi.nlm.nih.gov/333445/) Scopus ID: [6602719287](https://orcid.org/0000-0002-1815-2702) ORCID: [0000-0002-1815-2702](https://orcid.org/0000-0002-1815-2702)
Young Researcher 2012 Award of the Chemical Physics Division
(French Chemical Society, French Society of Physics) <http://ow.ly/gLkc304Krvs>
Adj. Pr. University Waterloo, ON Canada (2012-2015), **MRSC**
Senior CNRS researcher (promoted 2014 in “multi-disciplinary” section CID54)



Experience

- April 2010-: “Laboratoire de Chimie des Polymères Organiques” (joint research unit 5629 Université Bordeaux / CNRS / Bordeaux INP, headed by S. Lecommandoux) to develop nano-composite magnetic colloids for theranostics in the team “[Polymer self-assembly and life sciences](#)”.
- 2001-2010: **Junior CNRS researcher** at “Physicochimie des Electrolytes, Colloïdes et Sciences Analytiques”, headed by Pr. Valérie Cabuil (formerly called LI2C, joint research unit 7195 UPMC Université Paris 6 / CNRS / ESPCI Paris). Main topics: materials (gels, films) and dispersed multi-responsive colloids by incorporating magnetic nanoparticles in matrices (polymers, surfactants, liquid crystals...).
- 2000-2001: **Laureate of Lavoisier’s fellowship** of French Ministry of Foreign Affairs for a post-doctoral study in USA, in Pr. David J. Pine’s group at University of California – Santa Barbara (UCSB, Chemical Engineering / Materials Research Laboratory) in collaboration with Pr. Deborah K. Fygenon and Pr. Daniel Morse. Measurements of physical properties of biological microtubules made of a recombinant protein from a deep sea hyperthermophilic organism, *Pyrodictium Abyssii* (funded by Diversa Inc, San Diego CA).
- 1996-1997: **National service as military scientist** at “Laboratoire des Milieux Désordonnés et Hétérogènes” (former joint unit of CNRS and Paris 6 et 7 universities), supervised by Pr. Jean-Claude Bacri (University Paris 7) and Ronald E. Rosensweig (Blaise Pascal’s invited chair) to study hydrodynamic instabilities of ferrofluids.

Education

- 2011-2012: **Habilitation thesis** of UPMC Université Paris 6 in Research on Chemistry entitled “Magnetic Nanoparticles and Self-assembled Structures with (or without) Polymers” (defended publicly on 1/18/2012) tel.archives-ouvertes.fr/tel-01385284 + [Annex on works over period 1995-2021](#)
- 1997-2000: **Ph.D.** (Doctorat) of UPMC Université Paris 6 in physical chemistry specialty under supervision by Pr. Françoise Brochard-Wyart at “Laboratoire Physico-Chimie Curie” (joint unit 168 CNRS / Curie Institute / UPMC) on “Transient Pores, Adhesion and Fusion of Giant Vesicles” tel.archives-ouvertes.fr/tel-01385141 advertised in large audience journals: Science News, French edition of Scientific American, Science&Vie, Science&Avenir, Archimède, Biotech Info...
- 1995-1996: **M.Sc.** (DEA) at UPMC Univ Paris 6 obtained with highest grade (2nd rank of promotion), M. Sc. thesis at Curie Institute supervised by Dr. Pascal Silberzan on “force-free motion of droplets on asymmetrical surfaces”.
- 1992-1996: **Physics & Chemistry Graduate School (ESPCI Paris)**, end-year in “chemistry of functional materials” specialty, 1st rank of 111th promotion.

Research grants

- 2019-2023 **Intercellular Communication in Cancer Biology and Therapy (COMMUCAN)**, Integrative research site on cancer in Bordeaux (siric-brio.com) PI: Pr Andreas Bikfalvi (1M€ LCPO: 150k€)
- 2019-2023 **MAGnetic VESicle Rotation-Induced Cell-Killing (MAVERICK)**, ANR-19-CE09-0024 (425k€) PI: OS, Partners: BIC (Bordeaux), LPCNO (INSA Toulouse), Russian Acad. Sciences (Perm)
- 2018-2021 **Flexible Magnetic Filaments (FMF)**, AAP M-Era.Net 2017
Partners: University of Riga (Latvia), Slovak Acad. Sciences (Kosice, Slovaquie), Cordouan Technologies, Pessac (186k€), LCPO (75k€).
- 2012-2017 **MAGNETOCHEMOBLAST**: funded by CNRS Mission for Interdisciplinarity (10k€ in 2012), 2013-2017 by Agence Nationale de la Recherche [ANR-13-BS08-0017](https://orcid.org/0000-0002-1815-2702) (PI Dr. O. Sandre, 600k€)
- 2011-2014 **IDS FunMat**: Erasmus Mundus PhD fellowship on “Magnetic Micelles as Therapy and Diagnostic Agents” (idsfunmat.u-bordeaux.fr) co-directed with Pr. Mario Gauthier (University Waterloo, ON, Canada)

- 2008-2011 **FP7 NMP-2007 SMALL-1 NANO3T**: Biofunctionalized Metal and Magnetic Nanoparticles for Targeted Tumor Therapy (<https://projects.imec.be/nano3t/>)
- 2008-2012 **FP7 CP-IP 213631-2 NANOTHER**: Integration of novel nanoparticle based technology for therapeutics and diagnosis of different types of cancer (www.nanother.eu)
- 2008-2010 **ANR Blanche** (PI Dr. Jean-François Berret) on “IsoThermal Calorimetry as a Probe of Interactions between Magnetic Nanoparticles, Plasma Proteins and Cells”
- 2005-2008 **ACI Jeune Chercheur** (PI Pr. Sébastien Lecommandoux) on “Adaptative and Multifunctional Nano-Objects based on Copolymers”

Comitments: Formerly Member of [UPMC Université Paris 6](http://www.upmc.fr) Scientific Council (2006–2010), of [ILL](http://www.ill.fr) Sub-Committee 9 (2010-2012) on “Structure and Dynamics on Soft Condensed Matter” (Past Chair in 2014-2016), MC Member in COST Action TD1402 [RadioMag](http://www.radiomag.eu) and MC Substitute in COST Action TD1007 on [PET-MRI](http://www.pet-mri.eu). Member of Institute Scientific Council (CSI) of [2FDN](http://www.2fdn.fr) “French Federation on Neutron Scattering” (2017-), Elected Chair of CNRS [Institute of Chemistry CSI](http://www.institut-chemistry.cnrs.fr) (2018-2023), Member (2013-) and past Chair (2017-2020) French Physical Society-Condensed Matter Division ([SFP](http://www.sfp.fr)), Member of Royal Society of Chemistry (2015-, [MRSC](http://www.mrsc.org)), French Chemical Society (2020-, [SCF](http://www.scf.fr)) and French Polymer Group (2010-, Vice-President [GFP](http://www.gfp.fr) since Nov 2020). Executive Board Member of [Univ. Bordeaux Doctoral School in Chemical Sciences](http://www.univ-bordeaux.fr) (2021-).

101 peer-reviewed articles (81 in journals, 20 in conference proceedings, [100% Open Access rate](https://openaccess.ill.fr)) **3 book chapters, 6 patents filed.** cv.archives-ouvertes.fr/olivier-sandre H-index = 43, total number of citations ~6400 (1999: 1, 2000: 22, 2001: 32, 2002: 67, 2003: 108, 2004: 108, 2005: 107, 2006: 123, 2007: 128, 2008: 167, 2009: 196, 2010: 214, 2011: 259, 2012: 336, 2013: 356, 2014: 382, 2015: 441, 2016: 418, 2017: 531, 2018: 570, 2019: 569, 2020: 678, 2021: 535 ([Scopus](https://scopus.com) 11/16/21) Editorial board member of [Nanomaterials](http://www.nanomaterials.com) (2018-) [Journal of Nanotheranostics](http://www.journal-of-nanotheranostics.com) (2020-) and [Nanotechnology](http://www.nanotechnology.com) (2018-2021).

1. D. Letellier, O. Sandre, C. Ménager, V. Cabuil, and M. Lavergne, *Magnetic tubules*. **Materials Science & Engineering C: Biomimetic and Supramolecular Systems**, [1997. 5\(2\): 153-162](https://doi.org/10.1016/j.msec.2007.05.001) and [HAL postprint: hal-00164250](https://hal.archives-ouvertes.fr/hal-00164250)
2. O. Sandre, J. Browaeys, R. Perzynski, J.C. Bacri, V. Cabuil, and R.E. Rosensweig, *Assembly of microscopic highly magnetic droplets: Magnetic alignment versus viscous drag*. **Physical Review E**, [1999. 59\(2\): 1736-1746](https://doi.org/10.1103/PhysRevE.59.1736) and [HAL postprint: hal-02168821](https://hal.archives-ouvertes.fr/hal-02168821)
3. O. Sandre, L. Gorre-Talini, A. Ajdari, J. Prost, and Silberzan, *Moving droplets on asymmetrically structured surfaces*. **Physical Review E**, [1999. 60\(3\): 2964-2972](https://doi.org/10.1103/PhysRevE.60.2964) and [HAL postprint: hal-02168818](https://hal.archives-ouvertes.fr/hal-02168818)
4. O. Sandre, L. Moreaux, and F. Brochard-Wyart, *Dynamics of transient pores in stretched vesicles*. **Proceedings of the National Academy of Sciences of the United States of America**, [1999. 96\(19\): 10591-10596](https://doi.org/10.1073/pnas.96.19.10591) and [HAL postprint: hal-01920243](https://hal.archives-ouvertes.fr/hal-01920243)
5. O. Sandre, C. Ménager, J. Prost, V. Cabuil, J-C. Bacri, and A. Cebers, *Oblate-Prolate Transition of Ellipsoidal Giant Magnetoliposomes: Experiments Showing an Anisotropic Spontaneous Curvature*, Chapter 11 in *Perspectives in Supramolecular Chemistry Vol 6: Giant Vesicles*, P. L. Luisi & P. Walde, Eds. [2000, John Wiley & Sons, Ltd. 169-180](https://doi.org/10.1002/9783527300000.ch11) and [HAL postprint: hal-02320995](https://hal.archives-ouvertes.fr/hal-02320995)
6. A-L. Bernard, M-A. Guedeau-Boudeville, O. Sandre, S. Palacin, J-M. di Meglio, and L. Jullien, *Permeation through lipid bilayers by adhesion of giant vesicles on decorated surfaces*. **Langmuir**, [2000. 16\(17\): 6801-6808](https://doi.org/10.1021/9801056990) and [cea-01056990](https://hal.archives-ouvertes.fr/cea-01056990)
7. F. Brochard-Wyart, A. Buguin, Martin, A. Martin, and O. Sandre, *Adhesion of soft objects on wet substrates*. **Journal of Physics-Condensed Matter**, [2000. 12\(8A\): A239-A244](https://doi.org/10.1088/0953-8984/2000/12/8A/A239) and [HAL postprint: hal-02168817](https://hal.archives-ouvertes.fr/hal-02168817)
8. F. Brochard-Wyart, P-G. de Gennes, and O. Sandre, *Transient pores in stretched vesicles: role of leak-out*. **Physica A**, [2000. 278\(1-2\): 32-51](https://doi.org/10.1016/S0167-5768(00)00278-1) and [HAL postprint: hal-02168814](https://hal.archives-ouvertes.fr/hal-02168814)
9. L. Moreaux, O. Sandre, M. Blanchard-Desce, and J. Mertz, *Membrane imaging by simultaneous second-harmonic generation and two-photon microscopy*. **Optics Letters**, [2000 25\(5\): 320-322](https://doi.org/10.1364/OL.25.5.320-322) and [HAL postprint: hal-02168812](https://hal.archives-ouvertes.fr/hal-02168812) *errata*. **Optics Letters**, [2000. 25\(9\): 678-678](https://doi.org/10.1364/OL.25.9.678-678)
10. L. Moreaux, O. Sandre, M. Blanchard-Desce, and J. Mertz, *Simultaneous second-harmonic generation and two-photon excited fluorescence microscopy*, **Molecular Crystals and Liquid Crystals Science and Technology. Section B, Nonlinear Optics**, [2000, 25\(1-4\), 183-188](https://doi.org/10.1080/10616220008839185), [HAL postprint: hal-02994185](https://hal.archives-ouvertes.fr/hal-02994185)
11. L. Moreaux, O. Sandre, and J. Mertz, *Membrane imaging by second-harmonic generation microscopy*. **Journal of the Optical Society of America B-Optical Physics**, [2000. 17\(10\): 1685-1694](https://doi.org/10.1364/JOSAB.17.10.1685-1694) and [hal-02168804](https://hal.archives-ouvertes.fr/hal-02168804)
12. O. Sandre, C. Menager, J. Prost, V. Cabuil, J-C. Bacri, and A. Cebers. *Shape transitions of giant liposomes induced by an anisotropic spontaneous curvature*. **Physical Review E**, [2000. 62\(3\): 3865-3870](https://doi.org/10.1103/PhysRevE.62.3.3865) and [hal-00164220](https://hal.archives-ouvertes.fr/hal-00164220)
13. L. Moreaux, O. Sandre, S. Charpak, M. Blanchard-Desce, and J. Mertz, *Coherent scattering in multi-harmonic light microscopy*. **Biophysical Journal**, [2001. 80\(3\): 1568-1574](https://doi.org/10.1083/bj.2001.80.3.1568) and [HAL postprint: hal-01920233](https://hal.archives-ouvertes.fr/hal-01920233)
14. J. A. Galicia, O. Sandre, F. Cousin, D. Guemghar, C. Ménager, and V. Cabuil, *Designing magnetic composite materials using aqueous magnetic fluids*. **Journal of Physics-Condensed Matter**, [2003. 15\(15\): S1379-S1402](https://doi.org/10.1088/0953-8984/2003/15/15/S1379) and [HAL postprint: hal-01934989](https://hal.archives-ouvertes.fr/hal-01934989)

15. E. Karatekin, O. Sandre, and F. Brochard-Wyart, *Transient pores in vesicles*. **Polymer International**, [2003. 52\(4\): 486-493](#) and [HAL postprint: hal-02168780](#)
16. E. Karatekin, O. Sandre, H. Guitouni, N. Borghi, P-H. Puech, and F. Brochard-Wyart, *Cascades of transient pores in giant vesicles: Line tension and transport*. **Biophysical Journal**, [2003. 84\(3\): 1734-1749](#) and [HAL postprint: hal-00168676](#)
17. D. El kharrat, O. Sandre, Licinio, and R. Perzynski, *Adsorption of magnetic nanoparticles onto polyacrylamide chains in dilute polymer solutions and ferrogel networks*, in *Slow Dynamics in Complex Systems*, M. Tokuyama and I. Oppenheim Editors. **AIP Conference Proceedings**, [2004. 708\(1\): 122-123](#), [HAL postprint hal-00174166](#)
18. C. Ménager, O. Sandre, J. Mangili, and V. Cabuil, *Preparation and swelling of hydrophilic magnetic microgels*. **Polymer**, [2004. 45\(8\): 2475-2481](#) and [HAL postprint: hal-00162339](#)
19. C. da Cruz, O. Sandre, and V. Cabuil, *Phase behavior of nanoparticles in a thermotropic liquid crystal*. **Journal of Physical Chemistry B**, [2005. 109\(30\): 14292-14299](#) and [HAL postprint: hal-00016296](#)
20. S. Lecommandoux, O. Sandre, F. Chécot, J. Rodriguez-Hernandez, and R. Perzynski, *Magnetic nanocomposite micelles and vesicles*. **Advanced Materials**, [2005. 17\(6\): 712-718](#) and [HAL postprint: hal-00392707](#)
21. J-F. Berret, N. Schonbeck, F. Gazeau, D. El Kharrat, O. Sandre, A. Vacher, and M. Airiau, *Controlled clustering of superparamagnetic nanoparticles using block copolymers: Design of new contrast agents for magnetic resonance imaging*. **Journal of the American Chemical Society**, [2006. 128\(5\): 1755-1761](#) and [arXiv preprint: cond-mat/0512251](#)
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23. S. Lecommandoux, O. Sandre, F. Chécot, and R. Perzynski, *Smart hybrid magnetic self-assembled micelles and hollow capsules*. **Progress in Solid State Chemistry**, [2006. 34\(2-4\): 171-179](#) and [HAL postprint: hal-00168573](#)
24. S. Lecommandoux, O. Sandre, F. Chécot, J. Rodriguez-Hernandez, and R. Perzynski, *Self-assemblies of magnetic nanoparticles and di-block copolymers: Magnetic micelles and vesicles*. **Journal of Magnetism and Magnetic Materials**, [2006. 300\(1\): 71-74](#) and [HAL postprint: hal-00360731](#)
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26. A. Abou Hassan, O. Sandre, V. Cabuil, and P. Tabeling, *Synthesis of iron oxide nanoparticles in a microfluidic device: preliminary results in a coaxial flow millichannel*. **Chemical Communications**, [2008\(15\): 1783-1785](#) and [HAL postprint: hal-00266423](#)
27. J. Fresnais, J-F. Berret, B. Frka-Petesic, O. Sandre, and R. Perzynski. *Elaboration of superparamagnetic nanorods using iron oxide nanoparticles and polymers*. in *NSTI Nanotech Technical Proceedings - Life Sciences, Medicine, and Bio Materials*, [2008, Vol 2, Chapt 8: p. 689-692](#) (Open Access) and [HAL postprint: hal-02169078](#)
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29. J. Fresnais, J-F. Berret, B. Frka-Petesic, O. Sandre, and R. Perzynski, *Electrostatic Co-Assembly of Iron Oxide Nanoparticles and Polymers: Towards the Generation of Highly Persistent Superparamagnetic Nanorods*. **Advanced Materials**, [2008. 20\(20\): 3877-3881](#) and [arXiv preprint: 0901.2667](#)
30. J. Fresnais, J-F. Berret, L. Qi, J-P. Chapel, J-C. Castaing, O. Sandre, B. Frka-Petesic, R. Perzynski, J. Oberdisse, and F. Cousin, *Universal scattering behavior of coassembled nanoparticle-polymer clusters*. **Physical Review E**, [2008. 78\(4\): 040401\(R\)](#) and [arXiv preprint: 0902.3936](#)
31. E. Ishow, A. Brosseau, G. Clavier, K. Nakatani, Tauc, C. Fiorini-Debuisschert, S. Neveu, O. Sandre, and A. Leautic, *Multicolor Emission of Small Molecule-Based Amorphous Thin Films and Nanoparticles with a Single Excitation Wavelength*. **Chemistry of Materials**, [2008. 20\(21\): 6597-6599](#) and [HAL postprint: hal-00409263](#)
32. M. Meyer, Y.L. Raikher, O. Sandre, A. Bee, V. Cabuil, V. Dupuis, Licinio, and R. Perzynski, *Magneto-orientational properties of ionically stabilized aqueous dispersions of Ni(OH)₂ nanoplatelets*. **European Physical Journal E**, [2008. 26\(4\): 355-360](#) and [HAL postprint: hal-00346965](#)
33. A. Abou-Hassan, J-F. Dufreche, O. Sandre, G. Meriguet, O. Bernard, and V. Cabuil, *Fluorescence Confocal Laser Scanning Microscopy for pH Mapping in a Coaxial Flow Microreactor: Application in the Synthesis of Superparamagnetic Nanoparticles*. **Journal of Physical Chemistry C**, [2009. 113\(42\): 18097-18105](#) and [HAL postprint: hal-00428983](#)
34. A. Abou-Hassan, O. Sandre, S. Neveu, and V. Cabuil, *Synthesis of Goethite by Separation of the Nucleation and Growth Processes of Ferrihydrite Nanoparticles Using Microfluidics*. **Angewandte Chemie-International Edition**, [2009. 48\(13\): 2342-2345](#) and [HAL postprint: hal-00409238](#)
35. S. Douadi-Masrouki, B. Frka-Petesic, O. Sandre, F. Cousin, V. Dupuis, R. Perzynski, and V. Cabuil, *Neutron reflectivity on polymer multilayers doped with magnetic nanoparticles*, in *Magnetism and Magnetic Materials*, N. Perov, Editor. **Solid State Phenomena Series**, [2009. 152-153: 194-197](#) and [HAL postprint: hal-02202132](#)

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A. Abou-Hassan, O. Sandre, and V. Cabuil, *Mikrofluidik in der anorganischen Chemie*. **Angewandte Chemie**, 2010. 122(36): 6408-6428 and [HAL postprint: hal-00516989](#)
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42. S. Douadi-Masrouki, B. Frka-Petesic, M. Save, B. Charleux, V. Cabuil, and O. Sandre, *Incorporation of magnetic nanoparticles into lamellar polystyrene-*b*-poly(*n*-butyl methacrylate) diblock copolymer films: Influence of the chain end-groups on nanostructuring*. **Polymer**, 2010. 51(21): 4673-4685 and [HAL postprint: hal-00516975](#)
43. A-S. Robbes, J. Jestin, F. Meneau, F. Dalmas, O. Sandre, J. Perez, F. Boué, and F. Cousin, *Homogeneous Dispersion of Magnetic Nanoparticles Aggregates in a PS Nanocomposites: Highly Reproducible Hierarchical Structure Tuned by the Nanoparticles' Size*. **Macromolecules**, 2010. 43(13): 5785-5796 and [HAL postprint: hal-00533476](#)
44. M. Safi, H. Sarrouj, O. Sandre, N. Mignet, and J-F. Berret, *Interactions between sub-10-nm iron and cerium oxide nanoparticles and 3T3 fibroblasts: the role of the coating and aggregation state*. **Nanotechnology**, 2010. 21(14): 145103 and [arXiv preprint: 1011.1670](#)
45. W. Agut, A. Brûlet, D. Taton, O. Sandre, and S. Lecommandoux, *Depletion Induced Vesicle-to-Micelle Transition from Self-Assembled Rod-Coil Diblock Copolymers with Spherical Magnetic Nanoparticles*. **Soft Matter**, 2011. 7(20): 9744-9750 and [HAL postprint: hal-00668996](#)
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