

**Dr. Jean-Marc ZANOTTI**

[Web page](#)

90 [Publications](#)

H Factor: 25 ([Bibliometrics](#))

Average citation by paper: 33

21 Invited Conferences

[Laboratoire Léon Brillouin](#) (CEA-CNRS)

C.E.A. Saclay

91191 Gif-sur-Yvette Cedex France

[Instrument responsible](#) at [Inst. Laue Langevin](#)

71 Avenue des Martyrs, 38000 Grenoble, France

☎: +33 (0)4.76.20.75.82

Email: [jmzanotti@cea.fr](mailto:jmzanotti@cea.fr)

**CEA Research Director and Senior Expert**

*Physics at interfaces and under nanometric confinement*

**Referent for the LLB outstations**

### **Academic qualifications:**

---

2011:

**Habilitation à Diriger des Recherches**

[Nanometric confinement of molecular fluids: from interfacial interactions to one dimensional transport properties](#)

Université Pierre et Marie Curie- Paris VI (France).

1994-1997:

**PhD in Physics**

Structure and dynamics of interfacial water

Université Paris XI- Orsay (France).

### **Scientific experience:**

---

2004-2016

and

1997-2000:

**Commissariat à l'Énergie Atomique**

Laboratoire Léon Brillouin (CEA-CNRS)

French neutron scattering Expertise. Saclay (France).

Physicist: 

- Designer and Instrument Responsible of [SHARP](#)<sup>+</sup> at [ILL](#) (Grenoble)
- Research fields: dynamics of disordered systems: water, biological systems and polymers and electrolytes (bulk, interfaces and confinement).

2002-2003:

**Argonne National Laboratory (IL, USA)**

Visiting scientist at the **Intense Pulsed Neutron Source (IPNS)**

Instrument Scientist on the inverted geometry QENS spectrometer.

1993-1997:

**Commissariat à l'Énergie Atomique**

Laboratoire Léon Brillouin (CEA-CNRS)

*PhD thesis:*

« Structure and Dynamics of interfacial water. Role of hydration water in globular proteins dynamics ».

### **Scientific Award:**

---

2008:

[Price Schlumberger of the French Academy of Sciences](#)

for the results on confined and interfacial water.

### **Patents:**

---

2010:

Mineral electrolyte membrane for electrochemical devices. [WO 2012/013603](#).

2015:

Carbon nanotubes membrane for electrochemical devices. [WO/2016/151142](#).

2020:

CNT based composite membrane for electrolyte confinement. [FR2002224](#).

## Scientific expertise:

---

2010-2015: Responsible of the [Soft Complex Matter Scientific axis](#) of LLB.  
23 Researchers, 8 Post-Docs and 16 PhD

Member of selection panels of several Neutron Scattering Facilities:

- 2007-2010: ILL (Grenoble, France): Structure and Dynamics of Soft Condensed Matter.
- NIST center for Neutron Research (MD, USA), SNS (TN, USA).
- Bragg Institute (ANSTO), Sydney, Australia.
- J-PARC, Nakagun, Ibaraki, Japan.

## Teaching experiences:

---

- 2004: School of the French Neutron Society: "Neutron and Biology".
- 2003-2007: Higher European Research Courses for Users of Large Experimental Systems (HERCULES): ToF inelastic neutron scattering, Practicals.
- 2003-2008: FAN du LLB, Practicals on ToF inelastic neutron scattering.
- 2016: French Swedish School on Neutron scattering: "Polymer dynamics"
- 2018 & 2019: "Soft Matter" Master II, Grenoble: "Neutron and Polymer dynamics"

## Supervision of PhD students:

---

- 2005-2008: K. Lagrené / PhD advisor: M. Daoud (CEA/SPEC)  
"Polymer dynamics under uni-axial confinement".  
[2009 PhD Price of the French Neutron Society](#).
- 2007- 2010: G. Chahine / PhD advisor: Dr. R. Lefort (University of Rennes I):  
"Influence of confinement on Liquid crystals dynamics".
- 2013- 2016: F. Ferdeghini  
"Ionic Liquids under 1D nanometric confinement".
- 2019- 2022 : C. Pinchart (Thèse Phare CEA DRF/DRT-LITEN)  
"Lithium Metal Polymer Batteries: Towards Operation at Ambient Temperature".
- 2019- 2022 N. Modesto (Thèse Prim|80 CNRS)  
"Smart Composite Membranes for Lithium-Metal-Polymer Batteries".

## Supervision of Post-Docs:

---

- 2006-2008: N. Malikova,  
Proton conduction within membranes for Solid Oxide Fuel Cells (Perovskites).
- 2006-2008: S. Mitra,  
Visiting Scientist from Bhabha Atomic Research Center, Mumbai, India.
- 2012-2013: K. Panesar,  
Dynamics of ionic liquids under confinement (NMR and Neutron Scattering)
- 2014-2018: Q. Berrod,  
Ionic Liquids confined in 1D carbon Nanotube Membranes.
- 2016-2018: R. de Oliveira, Neutron Imaging-NMR coupling.
- 2018-2019: A. Bélime, Mineral Membrane for lithium batteries.

## European Projects:

---

- 2005-2007: Marie Curie outgoing Fellowship (IPNS-LLB)  
N. Malikova  
Proton conduction within membranes for Solid Oxide Fuel Cells (Perovskites).

- 2016-2017: Eurotalents (CEA & Marie-Curie outgoing Feollowship)  
Q. Berrod  
Collaboration with Berkeley Energy Storage Group (V. Battaglia)  
Electrochemical performances of CNT based Electrodes
- 2015-2018: WP of a Science and Innovation with Neutrons in Europe in 2020 Program  
Collaboration with CEA/DRF/IRAMIS/NIMBE (D. Sakellariou)  
Neutron Imaging and NMR online coupling.
- 2023-2026: WP of a M-ERANET project: NAMEAS  
Collaboration with CEA/DRF/IRIG/SyMMEs (S. Lyonnard & Q. Berrod)  
Dynamics of water in asymmetric anion-exchange membrane for Fuel Cells.

### **ANR Projects:**

---

- 2005-2008: BIONANOCOMP: Biocompatible composites  
Principal Investigator: J.-P. Salvetat (Orléans University, France).
- 2006-2010: LISSIL: Ionic liquids under confinement  
Principal Investigator: J. le Bideau (IMN, Nantes, France).
- 2010-2013: TEMPLDISCO: Liquid crystals under confinement  
Principal Investigators: D. Morineau, R. Lefort (Rennes University, France).

### **CNRS MITI Project:**

---

- 2019-2022: AMPERE  
Collaboration with  
Institut de Chimie Radicalaire (D. Gigmes & T. Phan)  
CEA/DRF/IRIG/SyMMEs (Q. Berrod).  
Smart CNT membrane for all-solid-state lithium batteries.

### **CEA funded projects:**

---

- 2012-2014: DSM “Idées Energie”:  
CONFLUENT: 1 D confinement of Ionic Liquids in alumina membranes.
- 2014-2016: Programme transverse Nouvelles Technologies pour l’Energie:  
PILPOIL: 1 D confinement of Ionic Liquids in CNT membranes.
- 2019-2022: Bottom-Up program:  
LEONARD: Single pore conduction of electrolytes in CNT membranes.
- 2024-2026: Programme Transverse de Compétences & Focus Biomarqueurs  
YESWECAN: micro RNA Sequencing by CNT membrane.

### **Programmes et équipements prioritaires de recherche (PEPR)**

---

- 2022-2027: WP of the PEPR H2 PEFMC-95  
Collaboration with CEA/DRF/IRIG/SyMMEs (S. Lyonnard & Q. Berrod)  
Dynamics of water anion-exchange membrane for Fuel Cells running at 95°C.

### **Juries:**

---

05/07/2005: M.-A. Néouze, Université de Montpellier, PhD Thesis.  
03/10/2005: A. Cadène, Université Paris VI, PhD Thesis.  
21/10/2008: K. Lagrené, Université Paris Sud - Orsay, PhD Thesis.  
17/07/2009: M. Martinez, INPG Grenoble, PhD Thesis.  
15/11/2010: G. Chahine, Université de Rennes I, PhD Thesis.

06/12/2012: R. Sood, INPG, PhD Thesis.  
21/02/2014: E. Farhi (ILL), Habilitation à Diriger des Recherches.  
17/10/2014: G. Euzen (CEA/DEN/Osiris), Diplôme d'ingénieur du CNAM.  
20/10/2015: F. Ferdeghini, Université Paris VI, PhD Thesis.  
21/06/2017: A. Ferrand, Université d'Aix-Marseille, PhD Thesis.  
05/10/2018: A. Christoulaki, Sorbone Université, PhD Thesis. Referee.  
09/11/2018: M. Baum, Université de Montpellier, PhD Thesis.  
13/12/2022: A. D'Angelo, Université Paris-Saclay, PhD Thesis.  
15/03/2024: H. Srinivasan, Bhabha Atomic Research Center, India, PhD Thesis, Referee.

#### **Organization of meetings and conferences:**

---

- 2008: Member of the local organizing committee of "Horizons in Hydrogen Bond Research", Paris September 14-18 2009.
- 2009: Member of the local organizing committee of "7<sup>èmes</sup> rencontres de St-Aubin LLB-Soleil": Confinement et nano-systèmes, Saint-Aubin, March 12-13 2009.
- 2016: International Advisory Committee of the International workshop on inelastic neutron spectrometers. Berlin, September 8-9 2016.

## Invited Conferences

### 1- J.-M. Zanotti

*A unified approach to the dynamics of a bulk polymer melt. Extension to the regime of nano-confinement.*

Quasi-Elastic Neutron Scattering 2006 conference (QENS2006).

June 14-17 2006, Bloomington, In, USA.

### 2- K. Lagrené, M. Daoud, J.-M. Zanotti

*Polymer dynamics under quasi-uniaxial confinement. The case of PEO in porous alumina.*

Dynamics of Soft Matter 2008.

December 4-6 2008, Boston, MA, USA.

### 3- J.-M. Zanotti, P. Judeinstein, J. Farrington, S. Greenbaum and M.C. Bellissent-Funel

*Low temperature phase transitions of interfacial water. Connection to protein dynamics.*

6<sup>th</sup> International Discussion Meeting on Relaxations in Complex Systems.

August 30- September 5 2009, Rome, Italy.

### 4- K. Lagrené, J.-M. Zanotti, M. Daoud, P. Judeinstein, K. Saalwachter, B. Farago, P. Fouquet, J. Ollivier, M. Maccarini

*Polymer dynamics under quasi-uniaxial confinement. The case of PEO in porous alumina.*

Trends and perspectives in Neutron Scattering in Soft-Matter.

October 5-8 2009, Tuzting, Germany.

### 5- S. Rodrigues, J.-M. Zanotti

*A new ToF instrument at LLB: the Fa# project.*

Trends in Cold Neutron Time-of-Flight Spectroscopy.

November 26-28 2009, Grenoble, France.

### 6- K. Lagrené, J.-M. Zanotti, M. Daoud, P. Judeinstein, K. Saalwachter, B. Farago, P. Fouquet, J. Ollivier, M. Maccarini

*Polymer dynamics under quasi-uniaxial confinement. The case of PEO in porous alumina.*

2009 Materials Research Society Fall Meeting / Multiscale Dynamics in Confining Systems.

November 30 –December 3 2009, Boston, MA, USA.

### 7- K. Lagrené, J.-M. Zanotti, M. Daoud

*Polymer dynamics under confinement: a neutron multi-scale approach.*

Workshop: Multi-scale dynamics under the nanoscope.

March 23-28 2011, MIT, Boston, MA, USA.

### 8- J.-M. Zanotti

*Physique du confinement nanométrique recherche amont et valorisation : apports de la diffusion de neutrons.*

Journées de la Diffusion Neutronique.

6-10 juin 2011, Batz-sur-Mer, France.

9- K. Lagrené, **J.-M. Zanotti**, M. Daoud, P. Judeinstein, B. Farago,  
*Polymer dynamics: does confinement induce a corset effect?*  
10<sup>th</sup> International Conference on Quasi-Elastic Neutron Scattering.  
September 30 –October 12 2012, Nikko, Japan.

10- K. Lagrené, **J.-M. Zanotti**, M. Daoud, P. Judeinstein, B. Farago,  
*Polymer dynamics under severe confinement.*  
2<sup>nd</sup> International Symposium on Neutron Scattering.  
January 14 – 17 2013, Mumbai, India.

11- **J.-M. Zanotti**,  
*Evidences for the presence of two distinct phases in interfacial water.*  
7<sup>th</sup> International Discussion Meeting on Relaxations in Complex Systems (8<sup>th</sup> IDMRCS).  
July 21 – 26 2013, Barcelona, Spain.

12- **J.-M. Zanotti**,  
*Interfacial water: structure, dynamics and relevance to the low critical point of water.*  
Annual Meeting of the European Molecular Liquids Group and the Jap. Mol. Liquids Group  
September 8 – 12, 2013, Lille, France.

13- F. Ferdeghini, Q. Berrod, **J.-M. Zanotti**, P. Judeinstein,  
*Ionic liquids in Bulk and under 1D confinement.*  
XXV Sitges Conference on Statistical Mechanics.  
June 6-10 2016, Barcelona, Spain

14- **J.-M. Zanotti**,  
*Polymer dynamics under severe 1D confinement.*  
*A multiscale neutron study from the THz to the ms.*  
*Complementarity between Optics and Neutron spectroscopy in the THz domain – SON2017*  
June 19-20 2017, Grenoble, France.

15- **J.-M. Zanotti**  
*IN6-SHARP: towards a new cold neutron spectrometer at ILL.*  
*Illustration of the capabilities in dynamics of Ionic liquids under 1D nanometric confinement.*  
24<sup>èmes</sup> Journées de la Diffusion Neutronique.  
May 2-4 2018, Carqueiranne, France

16- **J.-M. Zanotti**  
*Ionic Liquids: bulk vs 1D CNT confinement. Towards better batteries?*  
International Conference on Quasi-Elastic Neutron Scattering.  
July 15-20 2018, Hong-Kong.

17- **J.-M. Zanotti et al.**  
*LLB CRG Inelastic instruments at ILL: from IN6 to Sharp, then Sharp+.*  
Journées de la diffusion Neutronique.  
September 20-22 2021.

18- **J.-M. Zanotti et al.**

*A new LLB CRG Inelastic instruments at ILL: Sharp+.*

Journées de la Fédération Française de la neutronique.

September 20-22 2021.

19- **C. Pinchart, N. Modesto, Q. Berrod, P. Judeinstein, J.-M. Zanotti**

*Ionic Liquids under 1D CNT confinement.*

ACS 2022 Spring National Meeting.

March 20-24 2022, San Diego, CA, USA.

20- **C. Pinchart, N. Modesto, Q. Berrod, P. Judeinstein, J.-M. Zanotti**

*Ionic Liquids in bulk and under 1D CNT confinement.*

International Conference on Quasi-Elastic Neutron Scattering.

May 27-23 2022, San-Sebastian, Spain.

21- **C. Pinchart, N. Modesto, Q. Berrod, P. Judeinstein, J.-M. Zanotti**

*Ionic Liquids: bulk vs 1D CNT confinement. Towards better batteries?*

DYNAMics of FUNctionnal Materials (DYNAFUN)

September 11-15 2022, Annecy (France).

**Dr. Jean-Marc Zanotti**

**Publication List**

[Google Scholar](#)

H Factor: 24 (Web of Science)

90 publications / 2818 citations

Average Citations by article: 33

[Full Bibliometrics](#)

- 1- M.-C. Bellissent-Funel, S.H. Chen and **J.-M. Zanotti**, *Single-particle dynamics of water molecules in confined space*, Phys. Rev. E, **51**, 4558-4569 (1995).
- 2- M.-C. Bellissent-Funel, **J.-M. Zanotti** and S.H. Chen, *Slow dynamics of water molecules on surface of a globular protein*, Faraday Discuss., **103** (1996).
- 3- **J.-M. Zanotti**, M.-C. Bellissent-Funel and J. Parello, *Dynamics of a globular protein as studied by quasi-elastic neutron scattering and NMR*, Physica B, **234-236**, 228-230 (1997).
- 4- **J.-M. Zanotti**, M.-C. Bellissent-Funel and J. Parello, *Dynamics of a globular protein as studied by quasi-elastic neutron scattering and NMR*. European Biophysics Journal, **26** (1), 42 (1997).
- 5- J. Teixeira, **J.-M. Zanotti**, M.-C. Bellissent-Funel and S.H. Chen, *Water in confined geometries*. Physica B, **234-236**, 370-374, 1997.
- 6- **J.-M. Zanotti**, Structure et dynamique de l'eau interfaciale. Rôle de l'eau d'hydratation dans la dynamique des protéines globulaires, Thèse de l'Université Paris XI – Orsay, 1997.
- 7- **J.-M. Zanotti**, M.-C. Bellissent-Funel and J. Parello, *Hydration-coupled dynamics in protein studied by neutron scattering and NMR*, Biophysical Journal, **76**: 2390-2411 (1999).
- 8- J. Perez, **J.-M. Zanotti** and D. Durand, Modification of two globular proteins internal dynamics by raising hydration from powder to solution. *Biophysical Journal*, **77**: 454-469 (1999).
- 9- **J.-M. Zanotti**, M.-C. Bellissent-Funel and S.-H. Chen, *Relaxational dynamics of supercooled water in porous glass*, Physical Review E, **59**: 3084- 3093 (1999).
- 10- M.-C. Bellissent-Funel, S. Longeville, J.-M. Zanotti and S.-H. Chen, *Experimental Observation of the alpha Relaxation in Supercooled Water*, Physical Review Letters, **85**: 3644 (2000).
- 11- **J.-M. Zanotti**, G. Hervé and M.-C. Bellissent-Funel, *Aspartate transcarbamylase short time dynamics studied by inelastic neutron scattering*, European Biophysical Journal, **29**: 282 (2000).
- 12- **J.-M. Zanotti**, J. Parello and M.-C. Bellissent-Funel, *Influence of hydration and cation binding on the parvalbumin protein dynamics*, Applied Physics A, **74**, S1277-S1279 (2002)



- 13- L. Almasy, P. Banki<sup>1</sup>, M.C. Bellissent-Funel, M. Bokor, L.Cser, G. Jancso, K. Tompa<sup>1</sup>, **J.-M. Zanotti**, QENS and NMR studies of 3-picoline–water solutions, *s*, Applied Physics A, **74**, S1277-S1279 (2002).
- 14- D. Russo, J. Perez, **J.-M. Zanotti**, M. Desmadril and D. Durand, *Dynamical transition associated with thermal denaturation of a small protein*, Biophysical Journal, **83**: 2792-2800 (2002).
- 15- **J.-M. Zanotti**, L.J. Smith, E. Giannelis, P. Levitz, D.L. Price and M.-L. Saboungi, Polymer relaxational dynamics associated with ionic conduction in confined geometry, *Solid-State Ionics*, (MRS Symp. Proc., Vol. 756) (2003).
- 16- L. J. Smith, **J.-M. Zanotti**, G. Sandí, K. A. Carrado, P. Porion, A. Delville, D. L. Price, and M.-L. Saboungi, Characterization of Polymer Clay Nanocomposite Electrolyte Motions via Combined NMR and Neutron Scattering Studies, *Solid-State Ionics*, (MRS Symp. Proc., Vol. 756) (2003).
- 17- J.-P. Renou, L. Foucat, C. Corsaro, J. Ollivier, **J.-M. Zanotti**, H.D. Middendorf, Dynamics of collagen from bovine connective tissues, *Physica B*, **350**, 631–633 (2004).
- 18- A. I. Kolesnikov, **J.-M. Zanotti** and C.-K. Loong, Spectroscopy at IPNS: Recent Instrumental Upgrade and Scientific Highlights, *Neutron News*, **15**, 19, (2004).
- 19- A. I. Kolesnikov, **J.-M. Zanotti**, C.K. Loong, P. Thiyagarajan, A.P. Moravsky, P. Loutfy and C. Burnham, Anomalous soft dynamics of water in a nanotube: A revelation of nanoscale confinement, *Physical Review Letters*, **93**, 35503 (2004).
- 20- **J.-M. Zanotti**, L.J. Smith, D.L. Price and M.-L. Saboungi, Influence of confinement on polymer-electrolyte relaxational dynamics, *Mat. Res. Soc. Symp. Proc.*, 9.2.1 790 (2004).
- 21- N. Malikova, A. Cadène, V. Marry, E. Dubois, P. Turq, **J.-M. Zanotti** and S. Longeville, Diffusion of water in clays – microscopic simulation and neutron scattering, *Chemical Physics*, **317**, 226-235 (2005).
- 22- **J.-M. Zanotti**, L.J. Smith, D.L. Price and M.-L. Saboungi, Inelastic neutron scattering as a probe of dynamics under confinement. The case of a PEO polymer melt, *Ann. Chim. Sci.*, **30**, 353-364 (2005).
- 23- **J.-M. Zanotti**, M.-C. Bellissent-Funel and S.-H. Chen, Experimental evidence of a Liquid-Liquid transition in interfacial water, *Europhysics Letters*, **71**, 1:7 (2005).
- 24- C. Zhang, V. Arrighi, S. Gagliardi, I. J. McEwen, J. Tanchawanich, M. T.F. Telling, **J.-M. Zanotti**, Quasielastic neutron scattering measurements of fast process and methyl group dynamics in glassy poly(vinyl acetate), *Chemical Physics*, **328** 53–63 (2006).
- 25- **J.-M. Zanotti**, M C Bellissent-Funel, S-H Chen and A I Kolesnikov, Further evidence of a Liquid-Liquid transition in interfacial water., *J. Phys.: Condens. Matter*, **18**, S22299–S2304 (2006).
- 26- **J.-M. Zanotti**, L.J. Smith, D.L. Price and M.-L. Saboungi, A unified approach to the dynamics of a polymer melt, *J. Phys.: Condens. Matter*, **18**, S2391–S2402 (2006).

- 27- **J.-M. Zanotti**, G. Hervé and M.-C. Bellissent-Funel, Aspartate Transcarbamylase short time dynamics studied by inelastic neutron scattering, *Biochimica et Biophysica Acta (BBA) - Proteins & Proteomics*, **1764**, 1527-1535 (2006).
- 28- K. Lagrené and **J.-M. Zanotti**, Proceedings of the QENS 2006 conference, Bloomington, Indianan, June 2006, MRS Symp. Proc., PEO Melt Dynamics in Bulk and confined in Nanometric Cylindrical Channels, *149-160* (2006).
- 29- H.D. Middendorf, N. Alves, **J.-M. Zanotti**, Dynamics of an antibiotic oligopeptide, *Physica B: Condensed Matter*, **385-86**, 874-876 (2006).
- 30- **J.-M. Zanotti**, L.J. Smith, DL Price and M.L. Saboungi, A unified approach to the dynamics of a polymer melt, *J. Phys. Cond. Matt.* **18**, 2391-2402 (2006).
- 31- J.A. Stride, U.A. Jayasooriya, **J.-M. Zanotti**, et al., Molecular dynamics of the self-organizing strong hydrogen bonded 3,5-dimethylpyrazole, *New J. Chem.*, **30**, 425-429 (2006).
- 32- **J.-M. Zanotti**, M.C. Bellissent-Funel, SH Chen, A.I. Kolesnikov, Phase transitions of interfacial water at 165 and 240 K. Connections to bulk water physics and protein dynamics, *European Physical Journal – Special Topics*, **141**, 227-233 (2007).
- 33- K. Lagrené and **J.-M. Zanotti**, Anodic Aluminium Oxide: concurrent SEM and SANS characterisation. Influence of AAO confinement on PEO mean-square displacement, *Eur. Physical Journal- ST*, **141**, 261-265 (2007).
- 34- R. Guégan, D. Morineau, R. Lefort, A. Moréac, W. Béziel, M. Guendouz, **J.-M. Zanotti**, and B. Frick, Molecular dynamics of a short-range ordered smectic phase nanoconfined in porous silicon, *J. Chem. Phys.*, **126**, 064902 (2007).
- 35- N. Malikova, A. Cadene, E. Dubois, V. Marry, S. Durand-Vidal, P. Turq, J. Breu, S. Longeville, **J.-M. Zanotti**, Water Diffusion in a Synthetic Hectorite Clay Studied by Quasi-elastic Neutron Scattering, *J. Phys. Chem. C.*, **111**, 17603-17611 (2007).
- 36- N. Malikova, CK Loong, **J.-M. Zanotti**, Proton-containing yttrium-doped barium cerate: A simultaneous structural and dynamic study by neutron scattering, *J. Phys. Chem. C*, **111**, 6574-6580 (2007).
- 37- R. Lefort, R. Guégan, D. Morineau, M. Guendouz, **J.-M. Zanotti**, and B. Frick, Incoherent quasielastic neutron scattering study of molecular dynamics of 4-n-octyl-4'-cyanobiphenyl, *Physical Chemistry Chemical Physics*, **10**, 2993-2999 (2008).
- 38- K. Maver, U. Lavrenčič Štangar, P. Judeinstein, **J.-M. Zanotti**, Dynamic studies of Ormosil membranes, *Journal of Non-Crystalline Solids*, **354**, 680-687 (2008).
- 39- S. Combet, J. Pieper, F. Coneggio, J. P. Ambroise, M. C. Bellissent-Funel, **J.-M. Zanotti**. Coupling of laser excitation and inelastic neutron scattering: attempt to probe the dynamics of light-induced C-phycocyanin dynamics, *European Biophysics Journal with Biophysics letters*, **37**, 693-700 (2008).

- 40- R. Lefort, D. Morineau, R. Guégan, M. Guendouz, **J.-M. Zanotti**, B. Frick. Relation between static short-range order and dynamic heterogeneities in a nanoconfined liquid crystal, *Physical Review E*, **78**, 040701:040701-4 (2008).
- 41- V. Marry, N. Malikova, A. Cadene, E. Dubois, S. Durand-Vidal, P. Turq, J. Brey, S. Longeville, **J.-M. Zanotti**. Water diffusion in a synthetic hectorite by neutron scattering - beyond the isotropic translational model, *Journal of Physics Condensed Matter*, **20**, 104205 (2008).
- 42- **J.-M. Zanotti**, G. Gibrat, M. C. Bellissent-Funel. Hydration water rotational motion as a source of configurational entropy driving protein dynamics. Crossovers at 150 and 220 K. *Physical Chemistry Chemical Physics*, **10**, 4865-4870 (2008).
- 43- K. Lagrené and **J.-M. Zanotti**, Evidence of bayerite clusters within the AAO amorphous bulk alumina. Consequence for AAO SANS matching properties. *Mater. Res. Soc. Symp. Proc. Vol. 1074*, 1074-I13-02 (2008).
- 44- N. Malikova, S. Longeville, **J.-M. Zanotti**, E. Dubois, V. Marry, P. Turq, and J. Ollivier, Signature of Low-Dimensional Diffusion in Complex Systems, *Physical Review Letters*, **101**, 265901 (2008).
- 45- V. Tripadus, **J.-M. Zanotti**, M. Statescu, O. Constantinescu, S. Mitra and D. Aranghel, Molecular dynamics in hydrated sodium alginate by quasi-elastic and elastic neutron scattering, *Chemical Physics*, **365**, 30-37 (2009).
- 46- K. Lagrené, **J.-M. Zanotti**, M. Daoud, B. Farago and P. Judeinstein, Dynamical behavior of a single polymer chain under nanometric confinement, *Eur. Phys. J. ST*, **189**, 231-237 (2010).
- 47- K. Lagrené, **J.-M. Zanotti**, M. Daoud, B. Farago and P. Judeinstein, Large-scale dynamics of a single polymer chain under severe confinement, *Phys. Rev. E.*, **81**, 060801 (2010).
- 48- S. Combet, **J.-M. Zanotti**, M.-C. Bellissent-Funel, Temperature and hydration-dependent internal dynamics of stripped human erythrocyte vesicles studied by incoherent neutron scattering, *Biochimica et Biophysica Acta*, **1810**, 202–210 (2011).
- 49- D. Champion, C. Loupiac, D. Russo, D. Simatos, **J.-M. Zanotti**, Dynamic and sub-ambient thermal transition relationships in water–sucrose solutions, Differential scanning calorimetry and neutron scattering analysis, *J. Therm. Anal. Calorim.*, **104**, 365–374 (2011).
- 50- **J.-M. Zanotti**, S. Combet, S. Klimko, S. Longeville and F. Coneggio, Present and Future of the Quasi-elastic Neutron Spectroscopy at LLB. More than Simply Samples: Devices, *Neutron News*, **22**, 24-27 (2011).
- 51- S. Combet, **J.-M. Zanotti**, Further evidence that hydration water is the main driving force of protein dynamics: a neutron scattering study on perdeuterated C-phycoerythrin, *PCCP*, **14**, 4927-34 (2012).
- 52- I. Matar Briman, D. Rébiscoul, O. Diat, **J.-M. Zanotti**, P. Jollivet, P. Barboux, S. Gin, Impact of pore size and pore surface composition on the dynamics of confined water in highly ordered porous silica, *J. Phys. Chem.C*, **116**, 7021–7028 (2012).

- 53- **J.-M. Zanotti**, K. Lagrené, N. Malikova, P. Judeinstein, K. Panesar, J. Ollivier, S. Rols, M. Mayne-L'Hermite, M. Pinault and P. Boulanger, Nanometric confinement: toward new physical properties and technological developments. Relevance and potential contributions of neutron scattering. *European Physical Journal*, **213**, 129-148 (2012).
- 54- K. S. Panesar, C. Hugon, G. Aubert, P. Judeinstein, **J.-M. Zanotti** and D. Sakellariou, Diffusion of nano-channel confined ionic liquids measured using a novel one-sided NMR tomography, *Microporous and Mesoporous Materials*, **178**, 79–83 (2013).
- 55- M. Bastos, N. Alves, S. Maia, P. Gomes, A. Inaba, Y. Miyazakib and **J.-M. Zanotti**, Hydration water and peptide dynamics – two sides of a coin. A neutron scattering and adiabatic calorimetry study at low hydration and cryogenic temperatures, *Phys. Chem. Chem. Phys.*, **15**, 16693-16703 (2013).
- 56- S. Devineau, J.-M. **Zanotti**, C. Loupiac, L. Zargarian, F. Neiers, Fabrice, S. Pin, J.-P. Renault, Myoglobin on silica: a case study of the impact of adsorption on protein structure and dynamics, *Langmuir*, **29**, 13465-13472 (2013).
- 57- K.S. Panesar, P. Judeinstein, **J.-M. Zanotti**, Selective deuteration reveals interference caused by side-chain dynamics on measurements of self-diffusion in ionic liquid cations, *Physical Society of Japan*, **82**, SA013 (2013).
- 58- A. Slodczyk, P. Colombari, N. Malikova, O. Zaafrani, S. Longeville, **J.-M. Zanotti**, O. Lacroix, B. Sala, Bulk protons in anhydrous perovskites—neutron scattering studies, *Solid State Ionics*, **252**, 7-11 (2013).
- 59- S. Dalla Bernardina, F. Alabarse, A. Kalinko, P. Roy, M. Chapuis, N. Vita, R. Hienerwadel, C. Berthomieu, P. Judeinstein, **J.-M. Zanotti**, New experimental set-ups for studying nanoconfined water on the AILES beamline at SOLEIL, *Vibrational Spectroscopy*, **75**, 154-161 (2014).
- 60- S. Rols, D. Pontiroli, C. Cavallari, M. Gaboardi, M. Aramini, D. Richard, M. Johnson, **J.-M. Zanotti**, E. Suard, M. Maccarini, *Structure and dynamics of the fullerene polymer Li 4 C 60 studied with neutron scattering*, *Physical Review B*, **92**, 014305 (2015).
- 61- E. Secret, C.-C. Wu, A. Chaix, A. Galarneau, P. Gonzalez, D. Cot, M. Sailor, J. Jestin, **J.-M. Zanotti**, F. Cunin, Control of the Pore Texture in Nanoporous Silicon via Chemical Dissolution, *Langmuir*, **31**, 29, 8121-8128 (2015).
- 62- C. Cerclier, **J.-M. Zanotti**, J. Le Bideau, Ionogel based on biopolymer–silica interpenetrated networks: dynamics of confined ionic liquid with lithium salt, *Physical Chemistry Chemical Physics*, **17**, 29707-29713 (2015.)
- 63- A. Jarry, O. Joubert, E. Suard, **J.-M. Zanotti**, E. Quarez, Location of deuterium sites at operating temperature from neutron diffraction of  $\text{Ba}_{0.6}\text{Ti}_{0.2}\text{Yb}_{0.2}\text{O}_{2.6-n}(\text{OH})_{2n}$ , an electrolyte for proton-solid oxide fuel cells, *Physical Chemistry Chemical Physics*, **18**, 15751-15759 (2016).
- 64- Q. Berrod, F. Ferdeghini, P. Judeinstein, N. Genevaz, R. Ramos, A. Fournier, J. Dijon, J. Ollivier, S. Rols, D. Yu, **J.-M. Zanotti**, Enhanced ionic liquid mobility induced by confinement in 1D CNT membranes, *Nanoscale*, **8**, 7845-7848 (2016).

- 65- **J.-M. Zanotti**, P. Judeinstein, S. Dalla-Bernardina, G. Creff, J.-M. Brubach, P. Roy, M. Bonetti, J. Ollivier, D. Sakellariou, M.-C. Bellissent-Funel, Competing coexisting phases in 2D water, *Scientific Reports*, **6**, 25938 (2016).
- 66- M. Bonetti, **J.-M. Zanotti**, A simple AC calorimeter for specific heat measurement of liquids confined in porous materials: a study of hydrated Vycor, *Review of Scientific Instruments*, **87**, 094903 (2016).
- 67- X- F. Ferdeghini, Q. Berrod, **J.-M. Zanotti**, P. Judeinstein, D. Lairez, V. Garcia Sakai, O. Czakkel, P. Fouquet and D. Constantin, Scale-dependence of Ionic Liquids viscosity, *Scientific Report*, **7**, 2241 (2017).
- 68- S. Mitra, C. Cerclier, Q. Berrod, F. Ferdeghini, R. de Oliveira-Silva, P. Judeinstein, J. le Bideau, **J.-M. Zanotti**, Ionic Liquids Confined in Silica Ionogels: Structural, Thermal, and Dynamical Behaviors, *Entropy*, **19**, 140 (2017).
- 69- F. Ferdeghini, Q. Berrod, **J.-M. Zanotti**, P. Judeinstein, V. Garcia Sakai, O. Czakkel, P. Fouquet and D. Constantin, Nanostructuring of ionic liquids: impact on the cation mobility. A multi-scale study, *Nanoscale*, **9**, 1901-1908 (2017).
- 70- Q. Berrod, K. Lagrené, J. Ollivier and **J.-M. Zanotti**, Inelastic and Quasi-Elastic Neutron Scattering. Application to Soft-Matter, *European Physical Journal Web of Conferences*, **188**, 05001 (2018).
- 71- J. Puibasset, P. Judeinstein and **J.-M. Zanotti**, Molecular simulation study of the heat capacity of metastable water between 100 and 300 K, *Molecular Simulation*, 1-4, (2018).
- 72- R. de Oliveira-Silva, A. Bélime, C. Le Coeur, A. Chennevière, A. Helary, F. Cousin, P. Judeinstein, D. Sakellariou, **J.-M. Zanotti**, Coupling NMR to SANS: Addressing at once structure and dynamics in soft matter, *Journal of Neutron Research*, **21**, no. 3-4, 155-166 (2019).
- 73- J. Puibasset, P. Judeinstein, **J.-M. Zanotti**, Molecular simulation study of the heat capacity of metastable water between 100 and 300 K, *Molecular Simulation*, **45**, 462-465 (2019).
- 74- S. Le Caër, M.-C. Pignié, Q. Berrod, V. Grzimek, M. Russina, C. Carteret, A. Thill, **J.-M. Zanotti** and J. Teixeira, Dynamics in hydrated inorganic nanotubes studied by neutron scattering: towards nanoreactors in water, *Nanoscale Adv.*, **3**, 789–799 (2021).
- 75- J. Puibasset, P. Judeinstein and **J.-M. Zanotti**, Bulk supercooled water versus adsorbed films on silica surfaces: specific heat by Monte Carlo simulation, *Phys. Chem. Chem. Phys.*, **23**, 2275–2285 (2021).
- 76- A. Jani, M. Busch, J. B. Mietner, J. Ollivier, M. Appel, B. Frick, **J.-M. Zanotti**, A. Ghoufi, P. Huber, M. Fröba and D. Morineau, Dynamics of water confined in mesopores with variable surface interaction, *J. Chem. Phys.*, **154**, 094505 (2021).
- 77- J. Wolanin, J. Giraud, C. Payre, M. Benoit, C. Antonelli, D. Quemener, I. Tahiri, M. Vandamme, **J.-M. Zanotti** and M. Plazanet, Oedometric-like setup for the study of water transport in porous media by quasi-elastic neutron scattering, *Review of Scientific Instruments*, **92**, 024106 (2021).

78-, F. Foglia, S. Lyonnard, V. García Sakai, Q. Berrod, **J.-M. Zanotti** G. Gebel, A. J. Clancy, P. F. McMillan, Progress in neutron techniques: towards improved polymer electrolyte membranes for energy devices, *J. Phys.: Condensed Matter*, **33**, 264005 (2021).

79-, J. Wolanin, L. Michel, D. Tabacchioni, J.-M. Zanotti, J. Peters, I. Imaz, B. Coasne, M. Plazenet and C. Picard, Heterogeneous Microscopic Dynamics of Intruded Water in a Superhydrophobic Nanoconfinement: Neutron Scattering and Molecular Modeling, *The Journal of Physical Chemistry B*, **125**, 10392 (2021).

80- F. Foglia, Q. Berrod, A. J. Clancy, K. Smith, G. Gebel, V. García Sakai, M. Appel, **J.-M. Zanotti**, Madhusudan Tyagi, Najet Mahmoudi, Thomas S Miller, John R Varcoe, Arun Prakash Periasamy, Daniel JL Brett, Paul R Shearing, S. Lyonnard, P. F. McMillan, Disentangling water, ion and polymer dynamics in an anion exchange membrane, *Nature Materials*, **21** (5), 555-563 (2022).

#### ● « Local contacts » and data analysis on SHARP :

81- G. Noguere, J. P. Scotta, S. Xu, A. Filhol, J. Ollivier, E. Farhi, Y. Calzavara, S. Rols, B. Fak, **J.-M. Zanotti** and Q. Berrod, Combining density functional theory and Monte Carlo neutron transport calculations to study the phonon density of states of  $\text{UO}_2$  up to 1675 K by inelastic neutron scattering, *Phys. Rev. B*, **102**, 134312 (2020).

82- C. Candolfi, G. Guélou, C. Bourgès, A. R. Supka, R. Al Rahal Al Orabi, M. Fornari, B. Malaman, G. Le Caër, P. Lemoine, V. Hardy, **J.-M. Zanotti**, R. Chetty, M. Ohta, K. Suekuni and E. Guilmeau, Disorder-driven glasslike thermal conductivity in colusite  $\text{Cu}_{26}\text{V}_2\text{Sn}_6\text{S}_{32}$  investigated by Mössbauer spectroscopy and inelastic neutron scattering, *Phys. Rev. Materials*, **4**, 025404 (2020).

83- S. Petit, F. Damay, Q. Berrod and **J. M. Zanotti**, Spin and lattice dynamics in the two-singlet system  $\text{Tb}_3\text{Ga}_5\text{O}_{12}$ , *Phys. Rev. Research*, **3**, 013030 (2021).

84- High temperature molecular motions within a model protomembrane architecture, L. Misuraca, T. Matsuo, A. Cisse, J. LoRicco, A. Caliò, **J.-M. Zanotti**, B. Demé, P. Oger, J. Peters, *Physical Chemistry Chemical Physics*, (24)24, 15083-15090 (2022)

85- S. R. Turner, S. Pailhès, F. Bourdarot, J. Ollivier, Y. Sidis, J.-P. Castellán, **J.-M. Zanotti**, Q. Berrod, F. Porcher, A. Bosak, M. Feuerbacher, H. Schober, M. de Boissieu, V. M. Giordano *Nature Communications*, 13(1), 1-9 (2022).

86- Y. Alexanian, E. Lhotel, R. Ballou, C. V. Colin, H. Klein, A. Le Priol, F. Museur, J. Robert, E. Pachoud, P. Lejay, A. Hadj-Azzem, B. Fåk, Q. Berrod, J.-M. Zanotti, E. Suard, C. Dejoie, S. de Brion, V. Simonet, Physical Review Materials, Collective magnetic state induced by charge disorder in the non-Kramers rare-earth pyrochlore  $\text{Tb}_2\text{ScNbO}_7$ , *Physical Review Materials*, **7**, 9, 094403 (2023).

#### **Book Chapters:**

87- **J.-M. Zanotti**, Vibrations et Relaxations dans les molécules biologiques. Apports de la diffusion incohérente inélastique de neutrons, Ecole thématique « Neutrons et Biologie », Praz-sur-Arly, *Journal de Physique IV*, **130**, 87-113 (2005).

88- F. Leclercq – Huguéux, M.-V. Coulet, J.-P. Gaspard, S. Pouget, **J.-M. Zanotti**, Neutrons probing the structure and the dynamics of liquids, *Comptes rendus- Phys.*, **8**, 884-908 (2007).

89- J. Ollivier et **J.-M. Zanotti**, Diffusion Inélastique de Neutrons par temps de vol. Ecole thématique, *Journal de Physique IV, Collection de la Société Française de la Neutronique*, **10**, 379–423 (2010).

90- **J.-M. Zanotti** and D. Morineau, Surfaces and confinement effects in nano/mesoporous materials, Dynamics of Soft Matter: Neutron applications, V. Garcia Sakai, C. Alba-Simionesco and S.-H. Chen, Series Eds: R. McGreevy, I. Anderson and A. Hurd. Springer. 367-409 (2012).