

Christian SERRE, 46 years old

French Nationality, Date of birth : 27th August 1970

CNRS director of Research, Institut Lavoisier, CNRS- University of Versailles St Quentin (France)

Academic Career

01/01/2001-30/09/2009 : CNRS researcher, Institut Lavoisier UMR CNRS 8180, Université Versailles St Quentin (France).

2008 : Habilitation à Diriger les Recherches “ De la Genèse Raisonnée aux Applications des Solides Poreux Multifonctionnels“, Université of Versailles St Quentin (France), with honors.

Since 2009 : CNRS director of Research, Institut Lavoisier, CNRS Université Versailles St Quentin (France).

Since 2010 : Deputy Director of Institut Lavoisier, Université Versailles St Quentin.

Jan. 2015-Feb. 2016 : Director of Institut Lavoisier, UMR CNRS 8180

Since Sept. 2016 : Head of the Institute of Porous Materials, Paris, FRE 2000 CNRS, Ecole Normale Supérieure, Ecole Supérieure de Physique et de Chimie Industrielles de Paris

Education

1990-1994 : Engineer from the Ecole Supérieure de Physique et de Chimie Industrielles de Paris (ESPCI), speciality : Chemistry of Materials (3^d-4th years)

1994-1995 : MSc in Physical Chemistry, Université Paris VI (France), with honours

1996-1999 : PhD from the Université Versailles St-Quentin-en-Yvelines. Speciality: Inorganic Chemistry (December 1999) at Institut Lavoisier, Porous Solids team, UMR CNRS 8180. « Synthesis and characterisation of titanium-based porous solids and NMR *in situ* and *ex situ* study of their formation mechanism, with honours.

2000 : Post-doctoral fellowship at the CNRS-Rhodia- Princeton university joint laboratory (NJ, USA).

Research Interests

My main research interest deals with the synthesis, structure determination, including the use of X-ray diffraction data, and applications related to health and energy of porous Metal Organic frameworks.

Administrative/Scientific Responsibilities

✓ **Head of the group** “Porous Solids” at the Institut Lavoisier de Versailles UMR CNRS 8180, Université Versailles St Quentin (Sept. 2009-). **Director** of Institut Lavoisier since 01/01/2015.

✓ **Nominated member** of (i) the executive board of the Institut Lavoisier de Versailles UMR CNRS 8180 (2010-) & (ii) the steering committee of the Labex Project “Nano-saclay” (2011-2019)

✓ **Nominated member** of the (i) the steering committee of the Nanochemistry CNano-IDF (2010-) & (ii) scientific council of the Chemistry Institute of CNRS (2010-)

✓ **Elected member** of the steering committee of the French zeolite association “GFZ” (2011-)

✓ **Nominated Member of the Groups of Experts in Evaluation GEV03** for the eValuation of Quality of Research in Italy (2012-2013). **Expert for the Energy National program in Norway** (2014). **Expert for the FCT** (Portugal) (2015-2016). **Expert for the DOE** (EFRC projects) (USA) (2016)

Scientific Production/Impact

✓ **>275 Research products** : ~260 articles in the most recognized international journals in chemistry and in physics, including Science (x2), Nature (x1), Nature Materials (x2), Chem. Rev. (x1), Chem. Soc. Rev. (x4), Phys. Rev. Lett. (x1), Adv. Mater. (x4), J. Am. Chem. Soc. (x19), Angewandte Chemie (x27), etc; 16 patents (one is granted) & 4 Book Chapters.

✓ **More than 25000 citations** with 27 articles cited more than 200 times (source: ISI Web of Knowledge).

✓ **h index of 73** (h index/year numbers of research >3).

✓ **More than 50 oral presentations** in national & international conferences

✓ >25 *International Conferences/Workshops* including **1 MOF international conference** (plenary lecture, Marseille, 2010), **1 Gordon Research Conference** “Crystal engineering”, USA (2010), **1 Gordon Research Conference** “nanomechanical interfaces”, Hong Kong (2013), **1 FEZA conference** (plenary lecture, Valencia, 2011), **1 MOLMAT conference** (plenary lecture, Barcelona, 2012), **1 International Solvothermal and Hydrothermal Association Conference** (Bordeaux 2014), Plenary at European Conference on Molecular Magnetism ‘**ECMM**’ 2015 (Zaragoza), Keynote at Zeolite Microporous Crystals ‘**ZMPC**’ 2015 (Sapporo). Keynote lecture at the **NCCC2016**, Netherlands, **1 international Workshop on Porous Materials**, 2016 (Altai, Russia).

✓ >30 *invited national Conferences/Workshops* including the **Iberian adsorption “RIA” meeting** (Mostoles, 2008), the **British Zeolite Association meeting** (Bath, 2005), and the **Deutsche Zeolite Tagung** (Kiel 2009)

Memberships to Editorial Boards

✓ *Topical chair* of the International Zeolite conferences : 2010, Sorrento, Italy (>1000 participants) and 2013, Moscow, Russia. Panel member of the FCT (Portugal) evaluation committee (2015-2016)

✓ *Member of the Editorial Board* of the International Journal of Biomaterials and Nanobiotechnology, Zeitschrift für Anorganische und Allgemeine Chemie, and of ChemSusChem

Prizes & Awards

- ✓ CNRS Bronze medal 2006
- ✓ Laureate of the Lindau 56th Nobel Laureate Meeting 2006
- ✓ FP7 ERC starting grant 2008-2013 (reserve list of ERC Synergy 2014 grant)
- ✓ French Chemical Society Solid State Chemistry award 2011.
- ✓ Berthelot Medal and Prix Fondé de l'état from the French academy of Sciences (2016).

Funding ID

✓ **Previous Funding Summary**

3 European Projects : *Scientific Co-ordinator* of one workpackage of a FP6-EU STREP “*DeSANNS*” (2006-2008), starting grant ERC FP7 project “*BioMOFs*” (2008-2013) (bioapplications of MOFs), *Scientific Co-ordinator* of a large scale integrative FP7 project “*Macademia*” (2009-2013) (separation of hydrocarbons and oxidation catalysis). **4 National projects** : Co-ordinator of the ANR Program Blanc “*SAFHS*” (2008-2011); *Partner of the ANR CO₂ “NoMAC”* (2007-2010), ANR Blanc CONDMOFs (2007-2010), the ANR Panache (H₂) “*Mathysse*” (2007-2010). *Partner* of a french “pôle de compétitivité” project “*Nanogalenic*” (2008-2010) (drug delivery).

2 International Projects : *Co-ordinator of a french PICS project* (2009-2012) devoted to an international collaboration with the *KRICT laboratory* (Pr. J.S. Chang, Daejeon, Korea). *Co-ordinator of an exchange program between university of Aveiro* (Portugal) and *university of Versailles St Quentin* (2012-2013).

✓ **Current Funding**

3 European Projects: Synthesis workpackage leader of a FP7 demonstration project “*Sotherco*” (2013-2016) (composites for heat transfer applications); Synthesis workpackage leader of a FP7 Energy project “*M4CO2*” (2014-2017) (mixed matrixes polymers-MOFs membranes); 1 H2020 IEF ‘*HeteroMOF*’ as supervisor of grantee Dr Monica Gimenez (2015-2015); Synthesis workpackage leader of the H2020 Gramofon project (MOFs-graphene oxide composites for CO₂ capture) (2016-2020)

2 National Projects : *Co-ordinator of ANR Matepro “Virmil”* (2011-2015) : Encapsulation of anti-HIV drug molecules in MOFs materials. *Partner of a ANR Blanc project “MODS”*: mechanical properties of MOFs (2013-2016).

Industrial partnerships : IFP (2006-2008 : ANR and FP6); Total (since 2008, 2 FP7 projects); Michelin (2010-2013 ; 2 projects); Open-lab PSA since 2012 (1 PhD grant and 1 master internship) ; Chanel (2012-2013); Framergy (1 licence filed on one of my patents)

PhD & Staff Supervision

✓ **19PhDs** (8 in progress).

✓ **18 Postdoctorate** students (7 in progress).

Of these colleagues, one is currently performing his **habilitation (Germany)** (Dr. S. Wuttke), two are **CNRS researchers** (Dr. P. Horcajada, Dr. A. Demessence) and **two are researchers in industry** (Dr. S. Surblé, CEA and Dr. G. Massasso, St Gobain), that demonstrate my strong **mentoring** in materials science.

✓ **3 invited Professors** for stays >1 month : Prof. Paul Wright (St Andrews), Prof. H. Chun (Korea), Dr. Ren Hong (Jilin university, China).

The 10 most significant publications

(1) A. Cadiou, J. S. Lee, D. Damasceno-Borges, P. Fabry, T. Devic, M.T. Wharmby, D. Foucher, C. Martineau, F. Taulelle, C.-H. Jun, Y. K. Hwang, N. Stock, M. F. De Lange, F. Kapteijn, J. Gascon, G. Maurin, J.-S. Chang, C. Serre, *Adv. Mater.*, **2015**, 27(132), 4775-4780

(2) E. Alvarez, N. Guillou, C. Martineau, B. Bueken, B. Van de Voorde, C. Le Guillouzer, P. Fabry, F. Nouar, F. Taulelle, Dirk de Vos, J.-S. Chang, K. Ho Cho, N. Ramsahye, T. Devic, Marco Daturi, G. Maurin, C. Serre, *Angew Chem Int Ed Engl.* **2015**, 2015, 54(12), 3664–3668

(3) T. Devic, C. Serre, *Chem. Soc., Rev.*, **2014**, DOI: 10.1039/c4cs00081a

(4) Guillermin V, Ragon F, Dan-Hardi M, Devic T, Vishnuvarthan M, Campo B, Vimont A, Clet G, Yang Q, Maurin G, Férey G, Vittadini A, Gross S, **Serre C**, *Angew Chem Int Ed Engl.* **2012** 51(37), 9267–9271

(5) P. Horcajada, T. Chalati, C. Serre, B. Gillet, C. Sebrie, T. Baati, J. F. Eubank, D. Heurtaux, P. Clayette, C. Kreuz, J.-S. Chang, Y. K. Hwang, P.-N. Bories, L. Cynober, S. Gil, G. Férey, P. Couvreur, R. Gref, *Nat. Mater.*, **2010**, 9, 172

(6) M. Dan-Hardi, C. Serre, T. Frot, L. Rozes, G. Maurin, C. Sanchez and G. Férey : *J. Am. Chem. Soc. Comm.*, 131, **2009**, 10857-10859

(7) C. Serre, C. Mellot-Draznieks, S. Surblé, N. Audebrand, Y. Fillinchuk and G. Férey: *Science*, **2007**, 315, 1828-1831

(8) G. Férey, C. Mellot-Draznieks, C. Serre, F. Millange, J. Dutour, Suzy Surblé, I. Margiolaki: *Science* **2005** 309, 2040

(9) C. Serre, F. Millange, S. Surblé, G. Férey *Angew. Chem. Int. Ed.* **2004**, 43, 6286

(10) C. Serre, F. Millange, C. Thouvenot, M. Nogues, G. Marsolier, D. Louier, G. Férey *J. Am. Chem. Soc.*, **2002**, 124, 13519

