

Dr LEBEAU Bénédicte
Director of Research CNRS

Institut de Science des Matériaux de Mulhouse
Université de Haute Alsace
CNRS UMR 7361
3bis rue A. Werner
68093 Mulhouse cedex
Tel : 03 89 33 68 82 e-mail : benedicte.lebeau@uha.fr

Formation

- **Chemical Engineer degree** (1992), Ecole Supérieure de Chimie Organique et Minérale, (Compiègne, France)
- **Master degree in Spectrochemistry** (1992), University Pierre and Marie Curie (Paris, France)
- **PhD degree** (1995), University Pierre and Marie Curie (Paris, France)
- **Ability to Conduct Research** (2004), University of Haute Alsace (Mulhouse, France)

Research experience

- 1991-1995 **Master and PhD**
University Pierre and Marie Curie, Paris,
Laboratoire de Chimie de la Matière Condensée (Dr C. Sanchez)
«Synthesis et characterization of hybrid organic-inorganic materials for quadratic nonlinear optics»
- 1996 **Post-Doctoral** position, Rhône-Poulenc (12 months)
Centre de Recherches d'Aubervilliers (Dr L. Frouin – Dr J.-Y. Chane-Ching)/
Laboratoire de Chimie de la Matière Condensée (Dr C. Sanchez)
«Anisotropic growth of calcium phosphates at the organic-inorganic interface»
- 1997 **Post-Doctoral** position at the University of Bath, United Kingdom (12 months)
School of Chemistry (Pr S. Mann)
«Synthesis of materials with complex structure and architecture via a biomimetic approach»
- 1998-*present* **CNRS Research Fellow (Director of Research since 2009)**
Institute of Material Science of Mulhouse, Axis Materials with Controlled Porosity, CNRS UMR 7361, Mulhouse
«Synthesis, functionalization and characterization of ordered mesoporous solids »

Research Activities

Synthesis, functionalization, shaping and study of the properties of solids with controlled porosity such as zeolites and ordered mesoporous solids for applications in (photo)catalysis, treatment of gas and liquid effluents, heat management and encapsulation/vectorization of active ingredients.

Interests : porous inorganic and hybrid oxide-type materials, sol-gel and hydrothermal synthesis, organic and inorganic functionalization, mechanisms of formation, structural and textural characterization (gaz physisorption, electron microscopies, NMR, absorption and vibrational spectroscopies), bulk properties (adsorption, thermal conductivity).

Scientific output

136 peer-reviewed publications, 9 patents, 7 chapters in books, 57 invited conferences/seminars and 164 communications (oral and posters).

10 important Publications :

M. Etienne, S. Goubert-Renaudin, Y. Rousselin, C. Marichal, F. Denat, B. Lebeau, A. Walcarius

« Multi-arms cyclam-grafted mesoporous silica: a strategy to improve the chemical stability of silica materials functionalized with amine ligands”

Langmuir, **2009**, 25 (5), 3137–3145

R. Bongur, N. Marx, C. Marichal, P. Guarilloff

“Solid State NMR Characterization of Phenylbenzimidazole Sulphonic Acid Co-encapsulated with Cetyltrimethylammonium in Mesoporous Silica Material”

J. Phys. Chem. C., **2010**, 114, 752-759

T. Benamor, L. Vidal, B. Lebeau, C. Marichal

« Influence of synthesis parameters on the physico-chemical characteristics of SBA-15 type ordered mesoporous silica”

Micropor. Mesopor. Mater. **2012**, 153, 100-114

C. Gerardin, J. Reboul, M. Bonne, B. Lebeau

« Ecodesign of ordered Mesoporous silica materials »

Chem. Soc. Rev., **2013**, 42, 4217-4255

K. Assaker, C. Carteret, B. Lebeau, C. Marichal, L. Vidal, M.-J. Stébé, J.-L. Blin

“Water Catalyzed Low Temperature Transformation from Amorphous to Semi Crystalline Phase of Ordered Mesoporous Titania Framework”

ACS Sustainable Chem. Eng., **2014**, 2 2, 120–125

H. De Paz-Simon, A. Chemtob, C. Crouxte-Barghorn, S. Rigolet, L. Michelin, L. Vidal, B. Lebeau

“Periodic Mesostructured Silica Films Made Simple Using UV Light”

J. Phys. Chem. C, **2014**, 118 (9), 4959–4966

Y. Belmoujahid, M. Bonne, D. Schleich, Y. Scudeller, Y. Grohens, B. Lebeau

“Thermal conductivity of monolithic assemblies of SBA-15 ordered mesoporous silica particles”

Micropor. Mesopor. Mater., **2015**, 201, 124–133

I. Kabalan, G. Rioland, H. Nouali, B. Lebeau, S. Rigolet, M. Fadlallah, J. Toufaily, T. Hamieh, T. J. Daou

“Synthesis of purely silica MFI-type nanosheets for molecular decontamination”

RSC Adv., **2014**, 4, 37353-37358

M. Sibeaud, C. Crouxte-Barghorn, S. Rigolet, L. Michelin, L. Josien, L. Vidal, B. Lebeau, M. Wörner, A. Chemtob

“UV Aerosol Synthesis: a One-Step Route to Silica, Organic-Silica and Surfactant/Silica Nanostructured Materials”

RSC Advances, **2016**, 6, 65047 - 65054

I. Naboulsi, B. Lebeau, L. Michelin Laure, C. Carteret, L. Vidal, M. Bonne, M.-J. Stébé, J.-L. Blin

“Insights into Formation and Properties of Templated Dual Mesoporous Titania with Enhanced Photocatalytic Activity”

ACS Appl. Mater. Interfaces, **2017**, 9, 3113–3122

I. Naboulsi, B. Lebeau, C. F. Linares Aponte, S. Brunet, M. Mallet, L. Michelin, M. Bonne, C. Carteret, J.-L. Blin

“CoMoS active phase on acidic mesoporous titania for the direct hydrodesulfurization of gazole”

Appl Catal A General, **2018**, 563, 91–97