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Directeur de Recherche CNRS

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Formation:

- **Engineer in Chemistry** (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)
- **Habilitation to Conduct Research** (2004), University of Haute Alsace (Mulhouse, France)

Research activities:

- 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»
- 1998-2009 **Research Scientist CNRS**
Pole Materials with Controlled Porosity, Institute of Material Science of
Mulhouse, CNRS UMR 7361, Mulhouse
«Synthesis, functionalization and characterization of ordered mesoporous solids »
- 2009- **Research Director CNRS**
Pole Materials with Controlled Porosity, Institute of Material Science of
Mulhouse, CNRS UMR 7361, Mulhouse
«Synthesis, functionalization and characterization of ordered mesoporous solids »

Scientific area: Material Science

Research interests:

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 gaseous and liquid effluents, heat management and active principle vectorization.

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

Scientific output

170 peer-reviewed publications, 9 patents, 9 chapters in books, 57 invited conferences/seminars, and 171 communications (oral and posters).

10 Relevant Publications

- 1- Covalent coupling of an organic chromophore into functionalized MCM-41 mesophases by template-directed co-condensation
FOWLER C. E.; LEBEAU B. & MANN S.
Chem. Commun. 1998, 1825-1826
- 2- Fluorescence probing investigations of the mechanism of formation of mesoporous silica
ZANA R.; FRASCH J.; SOULARD M.; LEBEAU B. & PATARIN J.
Langmuir 1999, vol. 15, N°8, 2603-2606
- 3- Nanoscale Materials with Mesostructured Interiors
FOWLER C. E.; KHUSHALANI D.; LEBEAU B. & MANN S.
Adv. Mater. 2001, 13(9), 649-652
- 4- Rate of access to the binding sites in organically modified silicates – Part 2. Ordered mesoporous silicas grafted with amine or thiol groups
WALCARIUS A.; ETIENNE M. & LEBEAU B.
Chem Mater. 2003, 15, 2161-2173
- 5- Solid State NMR Characterization of Phenylbenzimidazole Sulphonic Acid Co-encapsulated with Cetyltrimethylammonium in Mesoporous Silica Material
BONGUR R.; MARX N. ; MARICHAL C. ; LEBEAU B. & GUARILLOF P.
J. Phys. Chem. C., 2010, 114, 752-759
- 6- Periodic Mesostructured Silica Films Made Simple Using UV Light
DE PAZ-SIMON, Heloïse; CHEMTOB, Abraham; CROUTXE-BARGHORN, Céline; RIGOLET, Séverinne; MICHELIN, Laure; VIDAL, Loïc; LEBEAU, Benedicte
J. Phys. Chem. C, 2014, 118 (9), 4959–4966
- 7- Thermal conductivity of monolithic assemblies of SBA-15 ordered mesoporous silica particles
BELMOUJAHID Y., BONNE M., SCHLEICH D., SCUDELLER Y., GROHENS Y. & LEBEAU B.
Micropor. Mesopor. Mater., 2015, 201, 124–133
- 8- New generation of nanoporous materials for environmental applications
KABALAN I, LEBEAU B., NOUALI H., TOUFAILY J., HAMIEH T., KOUBAISSY B., BELLAT J.P. & DAOU* T.J.
J. Phys. Chem. C 2016, 120 (5), pp 2688–2697
- 9- Insights into Formation and Properties of Templated Dual Mesoporous Titania with Enhanced Photocatalytic Activity
NABOULSI Issam, LEBEAU Bénédicte, MICHELIN Laure, CARTERET Cédric, VIDAL Loïc, BONNE Magali, STEBE Marie-José & BLIN* Jean-Luc
ACS Appl. Mater. Interfaces, 2017, 9, 3113–3122, DOI: 10.1021/acsami.6b13269
- 10- Controlled crystallization of hierarchical monoliths composed of nano-zeolites
MOUKKAHAL K., LE N. H., BONNE M., TOUFAILY J., HAMIEH T., DAOU T. J., LEBEAU B.

Cryst. Growth Des., 2020, 20, 8, 5413–5423.
<https://doi.org/10.1021/acs.cgd.0c00631>