Bertrand MONTHUBERT
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Born Aug. 1st, 1970

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Research activities

Position

Professeur, Université Paul Sabatier (IUT de Tarbes), Toulouse-Tarbes, France (since 2007).

Fields of interest

Operator algebras, groupoids, pseudodifferential calculus, singular manifolds, index theory, Kasparov's theory.

Research work

"Groupoids are key ingredients in index theory". With several collaborators I defined general tools giving some consistence to this assertion : pseudodifferential calculus on groupoids, analytic index, fredholmness condition... This gives a theory which can give results when applied to specific cases, provided one defines a groupoid adapted to the geometric situation. I did that for manifolds with corners, extending the b-calculus of Melrose, giving also a topological index theorem. Another application in progress is for Boutet de Monvel's calculus. This gives applications in PDEs, analysis on polyhedral domains, numerical analysis.
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Organisation of scientific events

– Organizer of the conference "Applications géométriques de l'analyse micro-locale", Marseille, june 2008
– Organizer of the "université d'automne" of "Sauvons la Recherche", september 2005, and 2006
– Member of the Organizing Committee of the French-Canadian Congress of Mathematics, Toulouse Juillet 2004
– Organizer of the séminaire Méditerranéen d'Algèbre et Topologie, Toulouse, Mars 2002
– Member of the Organizing Committee of the conference "Algebraic K-theory and Homotopy Theory of Schemes", Toulouse Juillet 2000

Education

2005

HABILITATION À DIRIGER DES RECHERCHES. UNIVERSITÉ P. SABATIER.
Contribution of Non-Commutative Geometry to Index Theory on singular manifolds
▷ *Jury : A. Connes, André Legrand, E. Leichtnam (referee), Ryszard Nest (referee), Tien Zung N'Guyen, J. Renault (referee), G. Skandalis.*

1994-1997

PHD IN MATHEMATICS. UNIVERSITÉ PARIS 7, SUPERVISOR : G. SKANDALIS.
Groupoids and pseudodifferential calculus on manifolds with corners
▷ *Jury : A. Connes, P. Gerardin, E. Leichtnam, R. Melrose (referee), V. Nistor (referee), M. Pimsner, J. Renault, G. Skandalis.*

1991-1995

STUDENT OF THE ECOLE NORMALE SUPÉRIEURE. PARIS.

1995-1996

TEACHING ASSISTANT. UNIVERSITY OF PENNSYLVANIA, SUPERVISOR : M. PIMSNER.

Other activities

Administrative responsabilities

– Member of the Conseil d'Administration of the Université Paul Sabatier 2006-2007
– Vice-president of the commission des personnels enseignants of the UPS 2006-2007
– Coordinator of math teaching in Licence 1 2005-2007
– Member of the Council of the UFR MIG 2003-2007
– Member of the recruiting committee (section 25) since 2000
– Member of the Conseil d'Administration of the Institut Henri Poincaré 2002-2010
– Member of the Conseil d'Administration of the Société Mathématique de France, 2000-2004
– Collaborator of the Directeur de la Recherche, Ministère de la Recherche, 1998-2002

Associative responsabilities

– President and founding member of the association "Sauvons la Recherche".
– Member of the Comité d'Initiative et de Propositions des Etats-Généraux de la Recherche, 2004
– Developper of the website "Sauvons la recherche", 2003

References

Bibliography

▷ B.M. and Victor Nistor, *A Topological Index Theorem for manifolds with corners*, to appear in Compositio Mathematica

▷ B.M. and Victor Nistor, *The K-groups and the index theory of certain comparison C*-algebras*, Noncommutative Geometry and Global Analysis, Contemporary Mathematics 2011, 213-224

▷ J. Aastrup, S.T. Melo, B.M. and E. Schrohe, *Boutet de Monvel's calculus and Groupoids, I : Singular Green Operators*, Journal of noncommutative geometry Volume 4, Issue 3, 2010, pp. 313–329

▷ P. Carrillo-Rouse and B. M., *An index theorem for manifolds with boundary*, C. R. Acad. Sci. Paris, Ser. I 347 (2009)

▷ B.M., *Contribution of Noncommutative Geometry to Index Theory on singular manifolds*, Geometry and topology of manifolds, 221–237, Banach Center Publ., 76, Polish Acad. Sci., Warsaw, 2007

▷ B.M., *Contribution de la Géométrie Non-Commutative à la théorie de l'indice sur les varétés singulières*, manuscrit d'Habilitation à diriger des recherches (décembre 2005)

▷ Robert Lauter, B.M. and Victor Nistor, *Spectral invariance for certain algebras of pseudodifferential operators*, J. de l'Inst. Math. Jussieu **4** (2005), Issue 03, 405–442

▷ Robert Lauter, B.M. and Victor Nistor, *Invariance spectrale des algèbres d'opérateurs pseudodifférentiels*, C. R. Math. Acad. Sci. Paris 334 (2002), no. 12, 1095–1099

▷ B.M., *Groupoids and pseudodifferential calculus on manifolds with corners*, Journal of Functional Analysis 199(2003), 243-286

▷ Robert Lauter, B.M. and Victor Nistor, *Pseudodifferential analysis on groupoids and singular spaces*, Documenta Mathematica, **5** (2000), 625–655.

▷ B.M. and Pierre-Yves Le Gall, *K-theory of the indicial algebra of a manifold with corners*, K-theory, **23** (2001), 105–113.

▷ B.M., *Groupoids of manifolds with corners and index theory*, to appear in *Groupoids in analysis, geometry, and physics*, Contemporary Math. **282** (2001), 147–157.

▷ B.M., *Groupoïdes et calcul pseudo-différentiel sur les variétés à coins*, Ph.D. thesis, Université Paris 7, 1998.

▷ B.M., *Pseudodifferential calculus on manifolds with corners and groupoids*, Proc. Amer. Math. Soc. **127** (1999), no. 10, 2871–2881.

▷ B.M. and François Pierrot, *Indice analytique et groupoïdes de Lie*, C. R. Acad. Sci. Paris Sér. I Math. **325** (1997), no. 2, 193–198.