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Snigdhayan Mahanta

Professional Experience

Employment History

11.2014–01.2016 **Wissenschaftlicher Mitarbeiter [E 13 Scale 4]**, *University of Regensburg*, Germany.

04.2012–10.2014 **Wissenschaftlicher Mitarbeiter [E 13 Scale 3]**, *University of Münster*, Germany.

07.2010–03.2012 **Research Associate [Level A]**, *The University of Adelaide*, Australia.

09.2009–06.2010 **Visiting Assistant Professor**, *Johns Hopkins University*, USA.

09.2008–08.2009 **Postdoctoral Fellow**, *Institut des Hautes Études Scientifiques*, France.

09.2007–08.2008 **Postdoctoral Fellow**, *University of Toronto*, Canada.

Education

2003–2007 **Ph.D. in Mathematics**, *Max Planck Institute for Mathematics at University of Bonn*, Germany, Final Grade: magna cum laude.
Dissertation: Algebraic Aspects of Noncommutative Tori: the Riemann-Hilbert Correspondence

2000–2003 **B.Sc. with Honours in Mathematics and Computer Science**, *Chennai Mathematical Institute*, Chennai India, Cumulative GPA: 9.33 / 10.
Thesis: Algebraic and rational points on cubic surfaces (after D. F. Coray)

1986–2000 **Higher Secondary Examination (elective Statistics)**, *South Point High School*, Kolkata, India, Final Grade: First Division.

Research Interests

- Geometry and topology; noncommutative geometry and operator algebras (46L85; 58B05; 55Nxx)
- K-theory and cyclic homology (46L80; 19D55)
- Higher categorical structures in physics (18Dxx; 18E30; 19Kxx; 19L50)

Publications

???? C^*-algebraic drawings of dendroidal sets, to appear in Algebr. Geom. Topol.; arXiv:1501.05799

2017 G-theory of $\mathbf{F}_1$-algebras I: the equivariant Nishida problem, J. Homotopy Relat. Struct., 12 (4), 901–930

2017 Model structure on projective systems of C^*-algebras and bivariant homology theories (with I. Barnea and M. Joachim), New York J. Math., 23, 383–439

2016 Symmetric monoidal noncommutative spectra, strongly self-absorbing C^*-algebras, and bivariant homology, J. Noncommut. Geom., 10 (4), 1269–1301

2015 Colocalizations of noncommutative spectra and bootstrap categories, Adv. Math., 285, 72–100

2015 Algebraic K-theory, K-regularity, and $\mathbf{T}$-duality of $\mathcal{O}_\infty$-stable C^*-algebras, Math. Phys. Anal. Geom., 18 (1)

2015 Noncommutative stable homotopy and stable infinity categories, J. Topol. Anal., 7 (1), 135-165

2015 On the Generating Hypothesis in noncommutative stable homotopy, Math. Scand., 116 (2), 301-308

2014 Twisted K-theory, K-homology and bivariant Chern–Connes type character of some infinite dimensional spaces, Kyoto J. Math., 54 (3), 597–640

2014 Assembly maps with coefficients in topological algebras and the integral K-theoretic Novikov conjecture, J. Homotopy Relat. Struct., 9 (2), 299–315

2011 Operator algebra quantum homogeneous spaces of universal gauge groups (with V. Mathai), Lett. Math. Phys., 97 (3), 263–277

2011 Higher nonunital Quillen K'-theory, KK-dualities and applications to topological **T**-dualities, J. Geom. Phys., 61 (5), 875–889

2010 Noncommutative geometry in the framework of differential graded categories, Arithmetic and geometry around quantization, 253-275, Progr. Math., 279

2009 Noncommutative tori and the Riemann-Hilbert correspondence (with W. D. van Suijlekom), J. Noncommut. Geom., 3 (2), 261–287

2008 Lecture notes on noncommutative algebraic geometry and noncommutative tori, An Invitation to Noncommutative Geometry, 355–382, World Sci. Publ.

Preprints

- Continuous homotopy invariance of bivariant local cyclic homology for σ-C^*-algebras, arXiv:1202.1333
- On some approaches towards non-commutative algebraic geometry, arXiv:math/0501166

Teaching Experience

WiSe 2015-16 Morse Theory (with Bernd Ammann), University of Regensburg

SoSe 2014 Topology in Euclidean Spaces (with Filipp Levikov and Michael Weiss), University of Münster

WiSe 2013-14 Topology 1 (Exercises), University of Münster

SoSe 2013 Infinite dimensional Lie theory (with Wend Werner), University of Münster

WiSe 2012-13 Mathematics for Physicists 1 (Exercises), University of Münster

Spring 2010 Adv. Algebra II [110.402], Johns Hopkins University

Fall 2009 Calculus I (Eng) [110.108], Johns Hopkins University (2 courses)

Spring 2009 Calculus II (Bio) [110.107], Johns Hopkins University

Spring 2008 Calculus I [MAT135Y (2)], University of Toronto

Fall 2007 Calculus I [MAT135Y (1)], University of Toronto

Fellowships and External Funding

10.2014 Ministry of Science and Culture, Lower Saxony for Workshop in Hannover

10.2014 Max Planck Institute for Mathematics, Bonn Visiting Fellowship

09.2014 Hausdorff Research Institute for Mathematics, Bonn Visiting Fellowship

12.2013–01.2014 Max Planck Institute for Mathematics, Bonn Visiting Fellowship

2011 Overseas Conference Leave Travel Grant, Adelaide

2010 Category 1 Grant Improvement Scheme, Adelaide

09.2008–08.2009 IHES, Paris Postdoctoral Fellowship

09.2007–02.2008 Fields Institute, Toronto Fellowship

09.2003–08.2007 IMPRS Scholarship of Max Planck Institute for Mathematics, Bonn

05.2003–06.2003 CMI-ENS Exchange Programme Grant

08.2000–08.2003 CMI-NBHM Scholarship for Undergraduates

Referee / Reviewer

- Journal of Noncommutative Geometry
- Letters in Mathematical Physics
- Journal of Physics A
- Several conference proceedings
- Mathematical Reviews
- Zentralblatt

Selected Talks

05.2015 Nijmegen Topology Day, Radboud University, Nijmegen, The Netherlands

12.2014 Analysis Seminar, Indian Statistical Institute, Kolkata, India

10.2014 MPI-Oberseminar, Max Planck Institute, Bonn, Germany

09.2014 Non-commutative geometry's interactions with mathematics, Hausdorff Research Institute, Bonn, Germany

08.2014 Mathematics Colloquium, The Institute of Mathematical Sciences, Chennai, India

06.2014 K-Theory and Index Theory, Université de Lorraine, Metz, France

05.2014 Graduiertenkolleg 1493 Colloquium, University of Göttingen, Germany

04.2014 Oberseminar Global Analysis, University of Regensburg, Germany

02.2014 Noncommutative spaces and their homology theories, University of Hannover, Germany

10.2013 Twists, generalised cohomology and applications, University of Münster, Germany

06.2013 Conference on Noncommutative Geometry and Quantum Groups, Fields Institute, Canada

02.2013 Seminar, Tata Institute of Fundamental Research, Mumbai, India

12.2012 Arbre de Noël, Université de Lorraine, Metz, France

10.2012 Oberseminar Topology, University of Münster, Germany

07.2012 K-Theory and Quantum Fields, ESI Vienna, Austria

12.2011 Operator Algebra Seminar, RIMS Kyoto, Japan

09.2011 Australian Mathematical Society AustMS Annual Meeting, Wollongong, Australia

05.2011 Canada Operator Symposium COSy, University of Victoria, Canada

05.2010 Noncommutative Geometry Seminar, Caltech, USA

07.2009 Conference on Algebraic Topology CAT'09, Warsaw, Poland

05.2009 Geometry over $\mathbf{F}_1$, Noncommutative Geometry and Zeta, NCGOA 2009, Vanderbilt University, USA

11.2008 Third International Workshop on Differential Algebra and Related Topics, Rutgers University, USA

05.2008 Noncommutative Geometry Workshop, Fields Institute, Canada

12.2007 Canadian Mathematical Society Winter Meeting, London, Ontario, Canada

Minicourses

11.2009 Workshop on $\mathbf{F}_1$-geometry, University of Granada, Spain

09.2005 International Workshop on Noncommutative Geometry, IPM Tehran, Iran

Service and Administrative Activities

- Co-organiser (with U. Bunke and A. Engel) of the Spring School on Algebraic K-theory of Topological Algebras, March 2015, Regensburg

- Co-organiser (with R. Deeley, M. Goffeng, and B. Mesland) of the Workshop Methods of Noncommutative Geometry in Analysis and Topology (partly funded by the Ministry of Science and Culture, Lower Saxony), October 2014, Hannover
- Co-organiser (with H. Thiel) of SFB Miniworkshop on C^*-Algebras, C^*-Bundles, and Group Actions, November 2013, Münster
- Co-organiser of IGA/AMSI Workshop on Dualities in Field Theories and the Role of K-theory, March 2012, Adelaide, IGA Lecturer - Jonathan Rosenberg
- Co-organiser of IGA/AMSI Workshop on The Mathematical Implications of Gauge-String Dualities, March 2012, Adelaide, IGA Lecturer - Rajesh Gopakumar
- Co-organiser of IGA/AMSI Workshop on Group-valued moment maps with applications to mathematics and physics, September 2011, Adelaide, IGA Lecturer - Eckhard Meinrenken
- Co-organiser of IGA/AMSI Workshop on Dirac Operators in Geometry, Topology, Representation Theory, and Physics, October 2010, Adelaide, IGA Lecturer - Daniel Freed
- Internal co-organiser of JAMI conference on Noncommutative Geometry, Arithmetic and Related Topics and the subsequent Workshop on $\mathbf{F}_1$, March 2009, Johns Hopkins University
- Reporter (Berichterstatter) for Mini-Workshop on Endomorphisms, Semigroups and C^*-Algebras of Rings, Oberwolfach, April 2012
- Co-organiser of Strings Journal Club seminar at University of Adelaide
- Co-organiser of Noncommutative Geometry and Arithmetic seminar at Johns Hopkins University
- Helped M. Weiss in Bachelor student supervision (Topic: Topology), University of Münster, Summer Semester 2014
- Helped V. Mathai in M. Phil. student supervision (Topic: Arithmetic Noncommutative Geometry), University of Adelaide 2011-12

Computer Skills

Proficient	Linux, Mac OS, Windows, LaTeX
Good	R, Python, MS Office
Basic	C, C++, JavaScript

Language Skills

Business fluent	English
Advanced	German
Elementary	French