Radu Purice

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Academic Degree:

Ph.D. in Physics (1990)

Current Position:

Senior Researcher and Scientific Secretary, Institute of Mathematics "Simion Stoilow" of the Romanian Academy, Bucuresti

Workgroup:

Evolution Equations and Control Theory, Partial Differential Equations and Mathematical Physics

Field of Activity:

Mathematical Physics - quantum mechanics.

Co-director

of the CNRS European Associated Laboratory "*LEA Mathématique et Modélisation Franco-Roumain*"

Member

in the Romanian Team of the RTN "*Network in Noncommutative Geometry*"

in the Romanian Team of the Euro-DGR "*Mathematics and Quantum Physics*"

Coordinator of the European Programme

[EURROMMAT](#)

Coordinator of the National CEx Programme

[Deterministic and Stochastic Differential Methods in the Study of Certain Evolution Models (MDDS)](#)

Coorganizer of

[*Workshop in Nonlinear Analysis and Mathematical Physics - Romanian - German Symposium on Mathematics and its Applications*](#) *, Sibiu, May 2009*

[*Qmath10 International Conference*](#) *, Moeciu, 2007*

[*6-th Congress of Romanian Mathematicians*](#) *, Bucharest, 2007*

[*Workshop on Aspects mathématiques du transport dans les systèmes mésoscopiques*](#)*, Marseille, December 2006*

Research activity:

- study of some models in field theory: Markoff property for the Free Euclidean Electromagnetic Field; solutions to the Ghinzburg- Landau equations in a two-dimensional bounded domain

- study of the Dirac Hamiltonian: nonrelativistic limit; time - dependent perturbations; singular perturbations; scattering theory

- the Dirac Hamiltonian with time dependent perturbations

Current interest in:

- spectral analysis and propagation estimations for quantum Hamiltonians

- the conjugate operator method and its applications in spectral theory and evolution properties

- weighted estimations of Hardy type for quantum Hamiltonians

- operator algebra methods in spectral theory and dynamics of quantum systems

- non-equilibrium steady states and transport theory

- functional calculus for quantum observables in a magnetic field

Recent Papers:

- Nassim Athmouni, Marius Mantoiu, Radu Purice: *On the continuity of spectra for families of magnetic pseudodifferential operators* .pdf

- Marius Mantoiu, Radu Purice, Serge Richard: *Coherent states in the presence of a variable magnetic field* .pdf

- Marius Mantoiu, Radu Purice: *The Modulation Mapping for Magnetic Symbols and Operators* .pdf

- Viorel Iftimie, Marius Mantoiu, Radu Purice: *Unicity of the integrated density of states for relativistic Schroedinger operators with regular fields and singular electric potentials* .pdf

- Viorel Iftimie, Marius Mantoiu, Radu Purice: *The magnetic formalism; new results* .pdf

- Viorel Iftimie, Marius Mantoiu, Radu Purice: *Commutator Criteria for Magnetic Pseudodifferential Operators* .pdf

- Viorel Iftimie, Marius Mantoiu, Radu Purice: *Estimating the number of negative eigenvalues of a relativistic Hamiltonian with regular magnetic field* .pdf

- Horia Cornean, Pierre Duclos, Gheorghe Nenciu, Radu Purice: *Adiabatically switched-on electrical bias in continuous systems, and the Landauer-Buttiker formula* .pdf

- Viorel Iftimie, Marius Mantoiu, Radu Purice: *Magnetic Pseudodifferential Operators* .pdf

- Marius Mantoiu, Radu Purice: *The Mathematical Formalism of a Particle in a Magnetic Field* .pdf

- Marius Mantoiu, Radu Purice, Serge Richard: *Spectral and Propagation Results for Magnetic Schroedinger Operators; a C*-Algebraic Framework* .pdf

- Marius Mantoiu, Radu Purice: *Strict Deformation Quantization for a Particle in a Variable Magnetic Field* .pdf; Abstract

- Marius Mantoiu, Radu Purice, Serge Richard: *Twisted Crossed Products and Magnetic Pseudodifferential Operators* .pdf

- Marius Mantoiu, Radu Purice: *The Magnetic Weyl Calculus* .pdf; Abstract

- Marius Mantoiu, Radu Purice: *The Algebra of Observables in a Magnetic Field* .pdf

- W.O. Amrein, M. Mantoiu, R. Purice:*Propagation Properties for Schroedinger Operators Affiliated to Certain C*-Algebras* .pdf; Abstract

Some Recent Talks:

- Calcul pseudodifferentiel pour des hamiltoniens quantiques en champ magnetique. (Universite Paris Sud, Orsay, April 2009).pdf

- NESS as adiabatic limit on the potential bias. (Dublin Institute for Advanced Studies, December 2008).pdf

- A gauge covariant approach for quantum systems in magnetic fields. Structure of the essential spectrum. (Universite de Geneve, Fevrier 2008) .pdf

- A Beals type criterion for pseudidifferential operators with a magnetic field (QMath10 International Conference, Moieciu, September 2007) .pdf

- Quantification stricte de deformation pour une particule dans un champ magnetique (Universite de Geneve, Avril 2005) .pdf

Publications:

List of published papers

List of edited volumes

Reviewed in Mathematical Reviews