

REMIGIUSZ DURKA

Curriculum Vitæ

POSTDOCTORAL POSITION

- OCT 2012 - ...
▶ Institute for Theoretical Physics, University Wrocław

EDUCATION

- OCT 2007 - JUN 2012
▶ PHD STUDIES (Institute for Theoretical Physics)
at University of Wrocław, Poland

Supervisor prof. Jerzy Kowalski-Glikman

Research constrained topological BF theory as gravity,
black hole thermodynamics, supergravity
canonical analysis

Thesis Deformed BF theory as
theory of gravity and supergravity

- OCT 2002 - JUN 2007
▶ MASTER IN THEORETICAL PHYSICS at *Faculty
of Physics and Astronomy*, University of Wrocław, Poland

SCIENTIFIC TRAINING

- MAR-APR 2012
▶ Scientific visit (*1 month*)
France Centre de Physique Theorique (Marseille)

- OCT-NOV 2010
▶ Visiting PhD student programme (*1 month*)
Sweden NORDITA (Stockholm)

- FALL 2006
▶ EXCHANGE SEMESTER (*Socrates Programme*)
Netherlands Universiteit van Amsterdam,
Vrije Universiteit Amsterdam,
Leiden University, Nikhef

SCHOLARSHIPS

- ▶ *Max Born scholarship for PhD students* supported by
the city of Wrocław (Oct 2011 - Jun 2012)
- ▶ New scholarship for young researchers of the University
of Wrocław (first edition Mar 2011 - Jul 2011) and
(second edition Oct 2011 - Feb 2012)
- ▶ Science scholarship for excellent results on PhD studies
(Oct 2010 - Jun 2011) and (Oct 2011 - Jun 2012)
- ▶ Scholarship of the University of Wrocław for very good
results on master studies (Oct 2003 - Jun 2007)

AWARDS

- *Best Institute Seminar in academic year 2009/2010*
at Wrocław Institute for Theoretical Physics

PAPERS AND PUBLICATIONS

- AUG 2012
◆ *Deformed BF theory as a theory of gravity and
supergravity*; Ph.D. thesis on arXiv: [1208.5185];
R. Durka
- Nov 2011
▲ *Immirzi parameter and Noether charges for first order
gravity* (J.Phys.Conf.Ser. 343 (2012) 012032, [1111.0961]);
R. Durka
- OCT 2011
◆ *Local AdS-Maxwell symmetry and gravity*
(preprint on arXiv: [1110.6812]);
R. Durka, Kowalski-Glikman
- JUL 2011
■ *AdS-Maxwell superalgebra and supergravity*
Mod.Phys.Lett. A, Vol. 27, 1250023 (2012), [1107.5731];
R. Durka, Kowalski-Glikman, Szczachor
- JUL 2011
■ *Gauged AdS-Maxwell algebra and gravity*
(Mod.Phys.Lett. A, Vol. 26, No. 36 (2011), [1107.4728]);
R. Durka, Kowalski-Glikman, Szczachor
- JUN 2011
■ *Gravity as a constrained BF theory: Noether charges
and Immirzi parameter*(Phys.Rev.D83,124011, [1103.2971])
R. Durka, Kowalski-Glikman
- AUG 2010
■ *Hamiltonian analysis of SO(4,1) constrained BF
gravity* (Class. Quantum Grav. 27 185008, [1003.2412v1]);
R. Durka, Kowalski-Glikman
- FEB 2010
■ *Supergravity as a constrained BF theory*
(Phys.Rev. D 81, 045022, [0912.1095v1]);
R. Durka, Kowalski-Glikman, Szczachor
- DEC 2009
▼ Co-editor of "XXV MAX BORN SYMPOSIUM
PROCEEDINGS-The Planck Scale 2009", AIP Volume 1196;
Kowalski-Glikman, Durka, Szczachor

GRANTS AND PROJECTS

- NOV 2011-DEC 2013
▶ NCN grant for young scientists before PhD: "*Canonical
and thermodynamical aspects of constrained BF theory as
gravity*" as director (Polish National Centre for Science)
- APR 2011-JAN 2012
▶ Supervisor grant: "*Thermodynamics, gravity and
topological field theories*" N N 202 112 740 (supported by
Polish National Centre for Science)
- JAN 2011-JAN 2012
▶ Institute Scientific Project: "*Constrained BF theory as
gravity*" 1477/M/IFT/11



REMIGIUSZ DURKA

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50-204 Wrocław, Poland

CONFERENCES

- APR 2012 XXX Max Born Symposium, String Theory (Wrocław), Poland
- OCT 2011 Quantum Gravity 6th Colloquium, (Nuremberg-Erlangen), Germany
talk given
- AUG 2011 Quantum Theory and Symmetries 7, (Prague), Czech
talk given
- JUNE 2011 XXIX Max Born Symposium, University of Wrocław, (Wrocław) Poland
talk given
- JUNE 2011 Quantum Theory and Gravitation, ETH, (Zurich), Switzerland
- MAY 2011 Loops 11, CSIC, (Madrid), Spain
- APR 2011 Stringtheory.pl/2011, University of Warsaw (Warsaw), Poland
- MAR 2011 3rd Quantum Gravity and Quantum Geometry School, (Zakopane), Poland
- OCT 2010 Quantum Gravity 5th Colloquium, Laboratoire APC, (Paris), France
talk given
- APR 2010 Quantum Gravity³, at Jagiellonian University (Cracow), Poland
talk given
- MAR 2010 Open Problems in Quantum Loop Gravity, (Zakopane), Poland
- SEP 2009 New Horizons in Gravity, NBI (Copenhagen), Denmark
- JUN 2009 The Planck Scale 2009, (co-organizer) (Wrocław), Poland
- MAR 2009 ICTP Spring School on Superstring Theory and Related Topics 2009, (Trieste), Italy
- DEC 2008 Quantum Gravity², at Jagiellonian University (Cracow), Poland
- JAN 2008 Quantum Gravity, at Jagiellonian University (Cracow), Poland
- FEB 2007 43rd Karpacz Winter School of Theoretical Physics "Condensed Matter Physics in the Prime of XXI Century", Poland
- FEB 2006 42nd Karpacz Winter School of Theoretical Physics "Current Mathematical Topics in Gravitation and Cosmology", Poland

INSTITUTE SEMINARS

- APR 2012 Deformed BF theory as theory of gravity and supergravity (FIS, University Łódź) (CPT in Marseille), (Wrocław Institute)
talks given
- NOV 2010 Gravity as a constrained BF theory (Nordita Institute in Stockholm)
talk given
- APR 2010 Computer applications in modern scientific work (Wrocław Institute)
talk given

OTHER LECTURES AND SEMINARS

- ▶ number of PhD seminars during 2008-2012
- ▶ number of master seminars during 2006-2008
- ▶ lectures for scientific club:
Cosmology, Higher dimensional Rubik cubes, Stanislaw Ulam: a story of mathematician
- ▶ lecture for gymnasium in Wrocław (2009),
Where did that come from?
- ▶ lecture at Festival of Science 2011 in Wrocław,
Theoretical Physics - where, when and how

TEACHING EXPERIENCE

- ▶ 2012 Computer technologies (5 groups)
- ▶ 2009 Application software
- ▶ 2008 Electrodynamics

ORGANIZATION

- ▶ Co-organizer of 5th European Rubik's Cube Championship Wrocław 2012 (with 300 competitors)
- ▶ Secretary and co-organizer of the "Planck Scale 2009" conference held in Wrocław
- ▶ Secretary of a scientific student club

COMPUTER SKILLS

scientific tools: \LaTeX , Mathematica
graphics: Inkscape, Gimp

LANGUAGES

POLISH native
ENGLISH fluent written and spoken
(2008 TOEFL 104/120)

OTHER

- ▶ *bronze medal in Shortest Solution* on Polish Championships 2007 in Rubik solving
- ▶ writing scientific blog (PL)

ACTIVITIES AND INTERESTS

- ▶ hi-tech innovations, science fiction, graphics
- ▶ solving higher dimensional Rubik puzzles

REMIGIUSZ DURKA PH.D.

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University of Wrocław

PUBLICATIONS

- **AdS-Maxwell superalgebra and supergravity**
R. Durka, J. Kowalski-Glikman, M. Szczańchor
Published in Mod.Phys.Lett. A, Vol.27, Issue 5 (2012) 1250023; (e-Print: arXiv:1107.5731 [hep-th])
- **Gauged AdS-Maxwell algebra and gravity**
R. Durka, J. Kowalski-Glikman, M. Szczańchor
Published in Mod.Phys.Lett. A, Vol.26, No.36 (2011) pp.2689-26961; (e-Print: arXiv:1107.4728 [hep-th])
- **Gravity as a constrained BF theory: Noether charges and Immirzi parameter**
R. Durka, J. Kowalski-Glikman
Published in Phys.Rev. D83 (2011) 124011; (e-Print: arXiv:1103.2971 [gr-qc])
- **Hamiltonian analysis of $SO(4,1)$ constrained BF theory**
R. Durka, J. Kowalski-Glikman
Published in Class.Quant.Grav. 27 (2010) 185008; (e-Print: arXiv:1003.2412 [gr-qc])
- **Supergravity as a constrained BF theory**
R. Durka, J. Kowalski-Glikman, M. Szczańchor
Published in Phys.Rev. D81 (2010) 045022; (e-Print: arXiv:0912.1095 [hep-th])

PREPRINTS

- ◆ **Deformed BF theory as a theory of gravity and supergravity**
R. Durka (Ph.D. thesis)
(e-Print: arXiv:1208.5185 [gr-qc]) (2012)
- ◆ **Local AdS-Maxwell symmetry and gravity**
R. Durka, J. Kowalski-Glikman
(e-Print: arXiv:1110.6812 [hep-th]) (2011)

PROCEEDINGS

- ▲ **Immirzi parameter and Noether charges in first order gravity**
R. Durka
Published in J. Phys.: Conf. Ser. 343 (2012) 012032 (e-Print: arXiv:1111.0961 [gr-qc])
- ▼ **Proceedings of the XXV Max Born Symposium Wrocław 2009**
J. Kowalski-Glikman, R. Durka, M. Szczańchor as the co-editors
Published as "The Planck Scale" AIP Volume 1196

INSTITUTE SEMINARS

- **Łódź** (FIS, Poland) *Deformed BF theory as a theory of gravity and supergravity* (Apr 2012)
- **Wrocław** (IFT, Poland) *Deformed BF theory as a theory of gravity and supergravity* (Apr 2012)
- **Marseille** (CPT, France) *Deformed BF theory as a theory of gravity and supergravity* (Mar 2012)
- **Wrocław** (Institute for Theoretical Physics): *Computer application in modern scientific work* (First prize for best institute seminar in academic year 2009/2010) (Apr 2010)
- **Stockholm** (seminar at Nordita Institute): "*Gravity as constrained BF theory*" (Nov 2010)

CONFERENCE TALKS

- **Erlangen**, Germany: *Quantum Gravity 6th Colloquium* (Oct 2011)
- **Prague**, Czech: *Quantum Theory and Symmetries 7* (Aug 2011)
- **Wrocław**, Poland: *XXIX Max Born Symposium* (Jun 2011)
- **Paris**, France (Laboratoire APC): *Quantum Gravity 5th Colloquium* (Oct 2010)
- **Cracow**, Poland (Jagiellonski University), *Quantum Gravity in Cracow³* (Apr 2010)

OTHER SEMINARS

- number of PhD seminars during 2007-2012
- number of master seminars during 2006-2007
- lectures for scientific club: *Cosmology, Higher dimensional Rubik cubes, Stanislaw Ulam: a story of mathematician*
- lecture for gymnasium in Wrocław (2009), *Where did that come from?*
- lecture at Festival of Science 2011 in Wrocław, *Theoretical Physics - where, when and how*

TEACHING EXPERIENCE

- **2012** - *Computer technologies* (5 groups)
- **2008** - *Electrodynamics*
- **2009** - *Useful application*

ORGANIZATION

- **2012** co-organizer of *European Rubik's Cube Championship Wrocław 2012* (with 300 competitors)
- **2009** secretary and co-organizer of the conference *Planck Scale Wrocław 2009*