Curriculum Vitae

Peter Dalakov

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Education

PhD, Mathematics (May 2008)	University of Pennsylvania
	Philadelphia, PA
	Adviser: Prof.Tony Pantev
MS, Nuclear & Particle Physics (July 2000)	Sofia University, Sofia, Bulgaria
	Adviser: Prof.Stefan Ivanov

Employment

Assistant Professor	American Univ. in Bulgaria, July 2017 – present
Research Associate	Algebra & Logic Sector, Inst. Math.& Info., BAS
	April 2012 – June 2017 (on leave 2013)
	July 2017–present (part-time)
Adjunct Assistant Professor	American Univ. in Bulgaria, Spring 2016 – Spring 2017
Postdoc/Research Associate	SISSA, Trieste, Italy
	December 2012 – December 2013
Research Associate/researcher	Mathematical & Theoretical Physics Sector
	INRNE, BAS
	September 2011 – March 2012
Visiting Assistant Professor	Department of Mathematics & Statistics,
	UMass–Amherst, Amherst, MA
	August 31,2008 – August 31, 2011.
Researcher	Mathematical & Theoretical Physics Sector,
	INRNE, BAS
	10.2001 – 06.2002, 09.2000 – 12.2000

Publications and Preprints

- *"Lectures on Higgs moduli and abelianisation"*, J. of Geometry and Physics, vol.118 (2017), pp. 94–125
- *"Meromorphic Higgs bundles and related geometries"*, J. of Geometry and Physics, vol.109 (2016), pp. 44–67
- *"Donagi–Markman cubic for the generalized Hitchin system"*, U.Bruzzo, P.Dalakov, Int. J. Math, Volume **25**, Number 2 (2014).
- *"On the L-infinity description of the Hitchin map"*, Rend. Ist. Mat. Univ. Trieste, vol.46 (2014), p.1–17
- *"A universal family of deformations for the uniformising Higgs bundle"*, preprint arXiv 1111.6457
- *"Harmonic spinors of the Dirac operator of connection with torsion in dimension four"*, P.Dalakov, S.Ivanov, Class. Quant. Grav. **18** (2001), pp.253–263.

Manuscripts in Preparation

- *Abelianisation, Special Kähler geometry and G_2 Hitchin systems*
- *Lectures on abelianisation, cameral covers and Higgs bundles*
- *A primer on smooth and holomorphic gerbes*
- *Introduction to deformation theory: from Kodaira–Spencer to Kontsevich–Soibelman*

Theses

- *"Higgs Bundles and Opers"*, University of Pennsylvania PhD Thesis (2008), *ProQuest AAI* 3309421, ISBN: 978-0549-57408-8.
- *"Eigenvalue Estimates for the Dirac Operator of Connections with Torsion"*, MSc Thesis, Sofia University, 2000 (in Bulgarian).

Grants and Fellowships

- ERASMUS+ teaching mobility grant, 2016/2017
- Funded by DFG via RTG "Cohomological Methods in Geometry" (Univ. of Freiburg) for a lecture series in deformation theory, 2016
- Funded by GEAR network (NSF), the European Research Council and NUS for participation in "Geometry, Topology & Physics of Moduli Spaces of Higgs Bundles", Singapore, 2014
- CERES–CEI Research Fellowship, grant agreement 229 660 (FP 7, Marie Curie Actions) 2012–2013
- Research and Educational Support Fund Grant, UMass–Amherst, 2010
- CIMPA–CIMAT Conference Grant, 2006
- GSAC Travel Grant (UPenn), Spring 2006
- Stipend by the "Eureka" foundation for youth creativity 1994 – 1999

Service

Organised

Reading Seminar in Algebraic Geometry (IMI-BAS) with H.Iliev	Spring '16,'17
	Fall '15
	Fall '12, Spring-Fall '14
UMass Mathematical Physics Seminar	Fall '10

Supervised

Graduate Independent Study: Moment maps & Toric Varieties	Spring '11
Independent Study: Mechanics on Coadjoint Orbits	Fall '10, Spring '11
Independent Study: Algebraic Topology	Spring '10

Served as

Scientific secretary, Algebra & Logic Sector, IMI-BAS	Sep–Dec '12
	May–July '14

Teaching Experience

American University in Bulgaria, Adjunct Asst.Prof., 2012, S 2016 − S 2017

Finite Mathematics	3 semesters
Introduction to Calculus	2 semesters

UMass − Amherst, Visiting Asst.Prof., 2008 − 2011

Differential Geometry	1 semester
Multivariable Calculus	3 semesters
Honours Multivariable Calculus	2 semesters
Linear Algebra	3 semesters
Undergraduate Complex Analysis	1 semester

University of Pennsylvania, 2002 − 2008

Calculus III	Summer '04
Calculus IV	Summer '05, '06, '07
Teaching Asst. for Abstract Algebra	1 semester
Teaching Asst. for Advanced Calculus	1 semester
Teaching Asst. for Calculus III	6 semseters
Teaching Asst. for Calculus I, II	3 semesters
Grader : Geometry–Topology, Graduate Complex Analysis	1 semester
Tutoring Center or Sunday Night Reviews	6 semesters

Pedagogical Training

Teaching Certificate Program: Center for Teaching and Learning, University of Pennsylvania, 2007 − 2008. Certificate in college teaching.

TA training program: Department of Mathematics, University of Pennsylvania, August 2002

ITA training program: School of Arts and Sciences, University of Pennsylvania, June – August 2002

Professional Memberships

AMS: 2002 – present
MAA: 2005 – 2012

Selected Talks And Lecture Series

- G_2 *Hitchin systems and cubics*, Workshop on quivers, moduli and integrable systems, Genova, December 2016
- *Generalised G_2 Hitchin systems, cubics and special Kaehler geometry*, SISSA, Trieste, Italy, July 2016
- *Introduction to deformation theory*, graduate minicourse, Univ. of Freiburg, Germany, January 2016
- *Special Kähler geometry and Langlands duality for the ramified G_2 Hitchin system*, workshop on Interactions between geometry and physics, Guarujà, Brazil, August 2015
- *Donagi–Markman cubic for the G-generalised Hitchin system*, workshop on The Geometry, Topology and Physics of Moduli Spaces of Higgs bundles, Singapore, July 2014
- *Donagi–Markman cubic for the generalised Hitchin system* , workshop on Instanton counting: Moduli spaces, Representation theory and Integrable Systems, Leiden, Netherlands, June 2014
- *Special Kähler geometry on the Hitchin base and Langlands duality*, Higher structures in algebraic analysis, Padova, Italy, February 2014
- *Donagi–Markman cubic for the generalised Hitchin system*, VBAC conference, Trieste, Italy, June 2013
- *Monodromy Deformations of opers*, School & Workshop on Algebraic Geometry and Physics, CIMAT, Guanajuato, Mexico, January 2013
- *Kähler Quantisation and Hitchin's Connection* Lecture Course (20 talks), INRNE, Sofia, Bulgaria, February – July 2012
- *A brief overview of non-abelian Hodge theory*, IMI, BAS, Sofia, Bulgaria, January 2012
- *Hitchin's Equations and Moduli spaces of Higgs bundles* 6 talks, INRNE, Sofia, Bulgaria,

October-November 2011
- *Deformations of the Hitchin section and DGLAs*, Summer school and conference on Hodge theory and related topics, ICTP, Trieste, Italy, July 2010
- *Deformations of the uniformising Higgs bundle*, Hodge-theoretic reflections on the string landscape (workshop), ICMS, Edinburgh UK, June 2010
- *Non-Abelian Hodge Theory and the Kapustin–Witten approach to Geometric Langlands*, Math-Physics Seminar, INRNE, June 2009
- *Non-Abelian Hodge Theory, Opers and the Hitchin Section*, 2 talks, Valley Geometry Seminar, UMass–Amherst, September 2008
- *Kuranishi Spaces for Analytic DGLA's*, 2 talks, Deformation theory seminar, UMass–Amherst, September 2008
- *A Short Walk in Non-Abelian Hodge Theory and the Kapustin–Witten Approach to Geometric Langlands*, 4 talks, Sofia University, August 2008
- *Higgs Bundles and Opers*, Conference on Vector Bundles and Moduli Spaces, Guanajuato, Mexico, December 2006

OTHER CONFERENCES AND SCHOOLS

- School on Moduli Spaces in Algebraic Geometry and Physics, Hamburg, August 2013
- String-Math 2011 Conference, University of Pennsylvania, Philadelphia, June 2011
- Conference on Moduli Spaces and Moduli Stacks, Columbia U., NY, May 2011
- MIT Talbot Workshop on Non-Abelian Hodge Theory, Draper, Utah, May 2011
- Algebraic Geometry, North-Eastern Series workshops: SUNY-SB, October 2009; UMass-Amherst, April 2010; UConn, September 2010; MIT, April 2011
- Workshop on Modern Moduli Theory, MSRI, February 2009
- Conference on Algebro-Geometric Derived Categories and Applications, IAS, Princeton, March 2008
- Workshop on Gauge Theory and Representation Theory, IAS, Princeton, November 2007
- Workshop on Homological Mirror Symmetry and Applications I & II, IAS, Princeton, January & March 2007
- Workshop on Algebraic Geometry and Physics, University of Pennsylvania, November 2005
- AMS Summer Research Institute in Algebraic Geometry, Seattle, August 2005
- Summer School in Noncommutative Geometry, ICTP, Trieste, Italy, August 2004

PERSONAL

Name: Dalakov, Peter Gueorgiev
Nationality: Bulgarian
Date of birth: 29 July 1975
Languages: English, Russian (fluent), Italian (basic)

REFERENCES

- Tony Pantev, University of Pennsylvania, email: tpantev@math.upenn.edu
- Ugo Bruzzo, SISSA, email: bruzzo@sissa.it
- Ron Donagi, University of Pennsylvania, email: donagi@math.upenn.edu
- Gueo Grantcharov, Florida International University, email: grantchg@fiu.edu
- Eyal Markman, University of Massachusetts–Amherst, email: markman@math.umass.edu
- Antonella Grassi, University of Pennsylvania, email: grassi@math.upenn.edu (teaching)
- Farshid Hajir, U Massachusetts–Amherst, email: hajir@math.umass.edu (teaching)