Yakov (Yasha) Savelyev

Research Fellow
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Personal

Born: January 17, 1980, Moscow, Russia.
Citizenship: USA, Russia

Education

Ph.D. SUNY Stony Brook, August 2008
Ph.D Advisor: Dusa McDuff
B.S. Mathematics, SUNY Stony Brook, 2002

Appointments

Visiting Assistant Professor, University of Massachusets, Amherst 2008- 2011
Posdoctoral Fellow, MSRI, spring 2010
Postdoctoral Fellow CRM-Montreal, August 2011- August 2013
Postdoctoral Fellow, ICMAT, Madrid, current

Longer term professional visits

Tel Aviv University, winter 2009 (Invited by Leonid Polterovich)
RIMS Kyoto University, spring 2014 (Invited by Kaoru Ono)

Research interests

My primary areas of research are in symplectic and differential geometry, especially Gromov-Witten and Floer theory, more recently with focus on connections to algebraic topology. I have also done a lot of work in Hofer geometry, which is a Finsler geometry on the group of Hamiltonian diffeomorphisms, much of this work is in connection with a certain Gromov-Witten theoretic object known as quantum characteristic classes, which was introduced in my thesis. I am also interested and have some papers in Mathematical physics (Yang-Mills theory, and quantization). Some of my work also concerns aspects of Hamiltonian dynamics.

Publications and Preprints

The list together with links is also at: Publication list

Quantum characteristic classes and the Hofer metric, Geometry & Topology, 12 (2008), pp. 2277–2326.

Virtual Morse theory on $\Omega Ham(M,\omega)$., J. Differ. Geom., 84 (2010), pp. 409–425.

Bott periodicity and stable quantum classes, Selecta Math.(2013) 19: 439-460

Gromov K-area and jumping curves in $\mathbb{CP}^n$, 2012, Algebraic and Geometric Topology

Proof of the index conjecture in Hofer geometry, Math. Res. Letters, Volume 20 (2013), 981-984
Morse theory for the Hofer length functional, Journal of topology and analysis, 08/2013; 06(02),

On the injectivity radius in Hofer geometry, with Francois Lalonde, Electronic Research announcements, Vol 21, 177-185, 2014

Yang Mills theory and jumping curves, Intern. Journ. of Math., 2015

Global Fukaya category and the space of A_∞ categories I, arxiv preprint 2013

Global Fukaya category and the space of A_∞ categories II, arxiv preprint, 2014

Non degenerate volume preserving diffeomorphisms of S^2 and the injectivity radius conjecture, arxiv preprint, 2014

On the Hofer geometry injectivity radius conjecture, arxiv preprint, 2015

Not ready for publication but I am now working on the second one:

Spectral geometry of the group of Hamiltonian diffeomorphisms, arxiv preprint

On configuration spaces of stable maps, arxiv preprint

Service

Referee for mathematical journals, and reviewer for Zetralblatt.
Co-organizer for symplectic geometry seminar at CRM-Montreal for the 2012-2013 year.
link to list of speakers

Fellowships and Awards

Department research award, 2006 Stony Brook
Department travel grant, 2007 Stony Brook
NSF travel grant 2006, 2005
Chair's award for outstanding thesis, 2008 Stony Brook
MSRI Postdoctoral fellowship, spring 2010,
CRM-Montreal postdoctoral fellowship, 2011-2013
ICMAT Madrid postdoctoral fellowship, current

Recent invited talks

CRM, Montreal, 2007.

Courant Institute of Mathematics, NYC, 2007.

Tel Aviv University, Topology and dynamics seminar, 2009.

University of Wisconsin, Madison, geometry-topology seminar, 2009.

UMASS, Amherst, geometry-topology seminar, (2 talks), 2008.

UMASS, Amherst, geometry-topology seminar, 2009.

Columbia University, geometry-topology seminar, 2009.

MSRI, research seminar, 2010.

CRM-Montreal, symplectic geometry seminar, 2011

UQAM, Montreal, CIRGET Seminar, 2012

IBS, Pohang, Korea, 2013

ICMAT, Madrid, May, 2013, (A talk on "Morse theory for the Hofer length functional")

CRM Barcelona, Fall 2013

ICMAT, Madrid Fall, 2013 (a 5 talk series of lectures on Hofer geometry)

ICMAT, Madrid Fall, 2013 ("Yang-Mills theory and Jumping curves")

University of Toronto, topology seminar, 2013

QGM, Aarhus, Denmark, 2013

Kyoto University, Institute of Mathematical sciences, 2014

Jerusalem University, Israel, 2014

University of Montpellier, France, 2014

Complutense University, Madrid, Spain, 2014

HSE, National Center for Research, Moscow, March 25, 2015

symplectix, Inst. H. Poincare, Paris, April 15, 2015

Conference talks

ICMS, conference on "Symplectic Geometry and Transformation Groups", in honor of H. Hofer, 2010.

Georgia topology conference, 2011

Lodz, Poland conference: "Contact and symplectic topology, with a focus on open problems" (Part of the joint Israeli-Polish mathematical societies meeting.), 2011

Tokyo IMPU, Floer and Novikov homology, Contact topology and related topics, 2014

Colima workshop in Geometry, Jan 2015

Teaching experience

3 years of lecturing experience as a graduate student at Stony Brook university. With 1 course

per semester load. These were very large calculus sections with 100 or more enrolled students per section. I also TA'd at Stony Brook for calulus, business calculus, and graduate algebraic topology (twice).

Another 2.5 years of lecturing experience as a visiting assistant professor at University of Massachusets, Amherst. (Away for half a semester at MSRI). I was doing 2 courses/sections per semester. Each section was small about 20-30 enrolled students. These were calculus and multivariable calculus sections.

Reference letters

Michael Usher, University of Georgia
Kevin Costello, Northwestern and the Perimeter Institute
Yael Karshon, University of Toronto
Kaoru Ono, RIMS Kyoto
Paul Gunnels (teaching), University of Massachusets, Amherst