Eric O. Korman

CONTACT INFORMATION

The University of Texas at Austin
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RESEARCH INTERESTS

Lie algebroids, complex and hyperkähler geometry, Dirac operators, differential geometry, symplectic geometry/quantization, and Lie groups and algebras.

POSITIONS

University of Texas at Austin, Austin, TX
RTG Instructor — August 2014 - current

EDUCATION

University of Pennsylvania, Philadelphia, PA
Ph.D., Mathematics. — May 2014
Thesis: *Elliptic Involutive Structures and Generalized Higgs Algebroids*

University of Pittsburgh, Pittsburgh, PA
B.S., (Honors) Mathematics with a minor in physics. — August 2008
Honor's Thesis: *Clifford Algebras and Bilinear Forms on Spinors*

PUBLICATIONS

A hyperholomorphic line bundle on certain hyperkähler manifolds not admitting an S^1-symmetry.
Differential Geometry and its Applications, 2017, Volume 51, p. 76-101.
`arXiv:1507.05951 [math.DG]`

Characteristic classes of Higgs bundles and Reznikov's theorem.
manuscripta math. 2016.
`arXiv:1404.1342 [math.DG]`

Symplectic Dolbeault Operators on Kähler Manifolds.
Ann. of Global Analysis and Geometry, October 2013, Volume 44, Issue 3, pp. 339-358.
`arXiv:1210.0248 [math.SG]`

Bilinear Forms and Fierz Identities for Real Spin Representations.
Advances in Applied Clifford Algebras, June 2012, Volume 22, Issue 2, pp. 329-363.
`arXiv:0901.0580 [gr-qc]`

TEACHING EXPERIENCE

University of Texas at Austin
Spring 2017: Instructor for M408C (calculus 1)
Fall 2016: Instructor for M392C (graduate course in spin geometry)
Spring 2016: Instructor for M361 (complex variables)
Fall 2015: Instructor for M341 (linear algebra for mathematics majors)
Spring 2015: Instructor for M340L-CS (matrices/linear algebra for C.S. students)
Fall 2014: Instructor for M361 (complex variables)

University of Pennsylvania
Fall 2013: Teaching assistant for MATH 361 (Real analysis)
Spring 2012: Teaching assistant for MATH 370 (Abstract algebra)
Fall 2011: Teaching assistant for MATH 241 (Calculus IV)
Summer 2011: Instructor for MATH 241 (Calculus IV)

Spring 2011: Teaching assistant for MATH 114 (Calculus II)
Fall 2010: Teaching assistant for MATH 104 (Calculus I)
Fall 2009: Teaching assistant for MATH 114 (Calculus II)

Outreach

The University of Texas at Austin
Math Club Talk October 10, 2016
"Geometry, topology, and analysis: a mathematical triad."
Expository talk for undergraduate mathematics majors.

The University of Texas at Austin
Directed Reading Program Fall 2015, Spring 2016, Fall 2016
Mentored undergraduate students in an independent study. Topics were symplectic geometry/quantization, Lie algebras, and differential geometry of curves and surfaces.

Invited talks

The Fields Institute
Geometry and Physics Conference (GAP 2016) May 17-20, 2016
"Introduction to moduli spaces of parabolic Higgs bundles" and "Geometric structures on moduli spaces of parabolic Higgs bundles"

2016 Joint Mathematics meetings
AMS Special Session on Parabolic Geometries, Twistor Theory, and the AdS/CFT Correspondence January 6, 2016
"Hyperholomorphic line bundles"

University of Pennsylvania
Math-Physics joint seminar December 8, 2015
"Hyperholomorphic line bundles"

Penn State University
Noncommutative Geometry Seminar November 21, 2013
"Higgs bundles and Index Theory"

University of Pittsburgh
Topology/Geometry + Physics conference June 28-29, 2012
"Symplectic $\bar{\partial}$ operators"

2009 Joint Mathematics Meetings
Special Session on Conformal Geometry, Twistor Theory, and Integrable Systems
"Fierz Identities for Real Spin Representations"

Posters

Isaac Newton Institute for Mathematical Sciences
Metric and Analytic Aspects of Moduli Spaces July 27 - 31, 2015
Poster on "A hyperholomorphic line bundle on certain hyperkähler manifolds not admitting an S^1-symmetry"

Utrecht University
Poisson 2012 summer school and conference July 23 - August 3, 2012
Poster on "Symplectic $\bar{\partial}$ operators"

Awards and honors

School of Arts and Sciences, University of Pennsylvania
George L. Harrison Fellow 2012-2013

Mathematics Department, University of Pennsylvania
Good teaching award Fall 2011 and Spring 2012

University of Pennsylvania
Finalist for the *Penn Prize for Distinguished Teaching by Graduate Students* Fall 2011

Conferences and workshops

Isaac Newton Institute for Mathematical Sciences
Metric and Analytic Aspects of Moduli Spaces July 27 - 31, 2015

Vanderbilt University
NCGOA Spring Institute 2013 May 3 - May 9, 2013

Utrecht University
Poisson 2012 summer school and conference July 23 - August 3, 2012

Northwestern University
Masterclass in Gauge Theory January 9 - 13, 2012

Center for Mathematics at Notre Dame
Summer School on Quantization and Related Topics May 31 - June 4, 2011

Physics Department, Virginia Tech
Summer School on Mathematical String Theory June 21 - July 2, 2010

Mathematics Department, Princeton University
RTG Summer Program in Analysis and Geometry July 27 - August 14, 2009

Languages

English (native), Spanish (conversational).