IOANNIS DIAMANTIS, PHD

diamantis@math.ntua.gr   Piraeus, Greece

EDUCATION

Postdoctoral Fellow   Present
National Technical University of Athens,
School of Applied Mathematical and Physical Sciences,
Department of Mathematics

PhD   National Technical University of Athens,   2014
School of Applied Mathematical and Physical Sciences,
Department of Mathematics
Thesis: "The Homflypt skein module of the lens spaces $L(p,1)$"
Committee: S. Lambropoulou (advisor), J.H. Przytycki, N. Papazoglou

MSc   National Technical University of Athens,   2007
School of Applied Mathematical and Physical Sciences,
Department of Mathematics
Dissertation: "Knot theory and its applications to Chemistry and Biology"
Advisor: S. Lambropoulou

BSc   University of Athens,   2005
Department of Mathematics

FINANCIAL SUPPORT FROM RESEARCH GRANTS

PEBE2008   2009-2011
Basic research grant of the National Technical University of Athens
Scientific Coordinator: S. Lambropoulou

PEBE2010   2011-2012
Basic research grant of the National Technical University of Athens
Scientific Coordinator: S. Lambropoulou

Program Supporting Postdoctoral Researchers for Dr. M. Chlouveraki   2012-2014
 "*Hecke algebras and braid groups associated with complex reflection groups*"

Program "THALES" of the Greek Ministry of Education & E.U.   2012-2015
"*Algebraic modeling of topological and computational structures and applications*"
Scientific Coordinator: S. Lambropoulou.

RESEARCH INTERESTS

Knots, braids and braid equivalences in various diagrammatical settings. Quotient algebras of braid groups and Jones-type invariants (skein modules). Applications of Knot Theory in Chemistry.

TEACHING EXPERIENCE

National Technical University of Athens, Greece   October 2014 to February 2015
Teaching Assistant, Civil Engineering School
"Linear algebra and Analytic Geometry", 1st semester course

National Technical University of Athens, Greece   March 2014 to July 2014
Teaching Assistant, School of Applied Mathematical and Physical Sciences
"Knot Theory and Applications in Physics, Biology, Chemistry and Graph Theory",
M.Sc. course

National Technical University of Athens, Greece   2007 to 2015
Example classes & evaluation and grading of homework assignments
- Civil Engineering School, "Linear algebra and Analytic Geometry", 1st semester course
- Civil Engineering School, "Multivariable Calculus", 2nd semester course
- School of Mechanical Engineering, "Multivariable Calculus", 2nd semester course
- School of Applied Mathematical and Physical Sciences, "Linear algebra and Analytic Geometry", 1st semester course
- School of Applied Mathematical and Physical Sciences, "Algebra and Applications", 7th semester course
- School of Applied Mathematical and Physical Sciences, "Algebra II", 8th semester course
- School of Applied Mathematical and Physical Sciences, "Linear Algebra and Applications", 2nd semester course

Educational Institution "Stogiannis", Holargos, Greece   2009 to 2013
Tutorials to high school and undergraduate students in mathematics
- Calculus
- Linear algebra and analytic geometry
- Statistics
- Ordinary differential equations
- Mathematics in Finance

Private Tutorials, Greece   1999 to 2015
Private tutorials to high school and undergraduate students in mathematics.

PUBLICATIONS

1. I. Diamantis, S. Lambropoulou, "A new basis for the Homflypt skein module of the solid torus". To appear in the "Journal of Pure and Applied Algebra". See also arXiv:1412.3642.

SUBMITTED FOR PUBLICATION

1. I. Diamantis, S. Lambropoulou, "Braid Equivalence in 3-manifolds with rational surgery description". Submitted for publication. See also arXiv:1311.2465.

WORK IN PROGRESS

1. I. Diamantis, S. Lambropoulou, J.H. Przytycki, "The Homflypt skein module of the lens spaces *L(p,1)* via braids. Manuscript in preparation.
2. I. Diamantis, B. Gabrovsek, S. Lambropoulou, M. Mroczkowski, "The Homflypt skein module of the lens spaces *L(p,q)*".

FUTURE WORK

1. I. Diamantis, S. Lambropoulou, "The braid analogue of Rational calculus".
2. I. Diamantis, S. Lambropoulou, "Jones type invariants for knots and links in homology 3-spheres obtained from S^3 by rational surgery along the trefoil knot".

RESEARCH VISITS

❖ MF Oberwolfach, Germany, 3 weeks in April 2015 (Research In Pairs with S. Lambropoulou and B. Gabrovsek).

PARTICIPATION IN CONFERENCES

1. 3-day workshop dedicated to the dissemination of the deliverables of the research project Thales, Athens, Greece, 1-3 July 2015.
    Title of talk*: The HOMFLYPT skein module of lens spaces*.

2. Algebra Conference, Thessaloniki, Greece, 02-03 May 2014.
    Title of talk: *Algebraic Braid Equivalence in 3-Manifolds*.

3. Winter Braids IV, School on algebraic and topological aspects of braid groups, Dijon, France, 10-13 February 2014.
    Title of talk: *Braid equivalence in 3-manifolds with rational surgery description*.

4. Winter Braids II, School on algebraic and topological aspects of braid groups, Caen, France, 12-15 December 2011.
    Title of talk: *Toward the 3rd skein module of L(p,q).*

5. Knots and Links: From Form to Function, Pisa, Italy, 02-08 July 2011.
    Title of talk: *The 3rd skein module of L(p,1).*

6. Swiss Knots: Knot Theory and Algebra, Lake Thun, Switzerland, 23-27 May 2011.
    Title of poster: *Toward the 3rd skein module of lens spaces*.

7. Knots in Chicago, U.I.C., U.S.A., 12-14 September 2010.
    Title of talk: *Toward the 3rd skein module of L(p,q).*

8. Advanced School and Conference on Knot Theory and its Applications to Physics and Biology, ICTP, Trieste, Italy, 11-29 May 2009.
    Title of poster: *Topological Markov theorem in lens spaces*.

9. The Mathematics of Knots: Theory and Applications, University of Heidelberg, Germany, 15-19 December 2008.

10. 8th Panhellenic Conference in Algebra, Number Theory and Applications, National Technical University of Athens, Greece, 29 May 2008.

SEMINAR TALKS

1. National Technical University of Athens, Low Dimensional Topology Seminar, December 2014.
    Title of talk: *The Homflypt skein module of L(p,1).*

2. National Technical University of Athens, Low Dimensional Topology Seminar, October 2014.
    Title of talk: *Toward the Homflypt skein module of L(p,q).*

3. National Technical University of Athens, Low Dimensional Topology Seminar, October 2014.
    Title of talk: *A new basis for the Homflypt skein module of the Solid Torus*.

4. National Technical University of Athens, Low Dimensional Topology Seminar, March 2014.
    Title of talk: *The Knot Group and the Alexander Polynomial*.

5. National Technical University of Athens, Low Dimensional Topology Seminar, March 2014.
   Title of talk: *Braids: An introduction*.

6. National Technical University of Athens, Low Dimensional Topology Seminar, June 2011.
   Title of talk: *Combinatorial construction of the HOMFLYPT polynomial*.

7. National Technical University of Athens, Low Dimensional Topology Seminar, February 2009.
   Title of talk: *Lens spaces and knot theory*.

8. National Technical University of Athens, Low Dimensional Topology Seminar, June 2009.
   Title of talk: *Knots in Chemistry and Biology*.

9. National Technical University of Athens, Low Dimensional Topology Seminar, July 2008.
   Title of talk: *The Alexander polynomial*.

10. National Technical University of Athens, Low Dimensional Topology Seminar, November 2007.
    Title of talk: *Knot theory and its applications to Chemistry and Biology*.

PROFESSIONAL AFFILIATIONS

American Mathematical Society (AMS), 2008-2013

Hellenic Mathematical Society (HMS), 2001-Present

Hellenic National Meteorological Service (HNMS), 2012-2013

PROFESSIONAL SERVICE

Symposium Secretary
8th Panhellenic Conference in Algebra, Number Theory and Applications, National Technical University of Athens, Greece, 29 May 2008.

COMMUNITY SERVICE

Weather observer
Heraklion Airport "Nikos Kazantzakis", December 2012-January 2013 & Karpathos National Airport, July-August 2012.

Meteorological Support
Hellenic National Meteorological Service, Hellinikon, Greece, 2012-2013.

LANGUAGES

Greek: Native Language

English: Advanced Listener, Speaker, Reading and Writing
Certificate in English, University of Michigan, March 2001

German: Intermediate Listener, Novice Speaker, Intermediate Reading and Writing
Zerifikat, Goethe institute, Athens, Greece, June 1997

COMPUTER SKILLS

Microsoft Office (Word, Excel, Powerpoint)

LaTex

Adobe Illustrator

Knotplot

OTHERS

1. Weather Observer Certificate, Hellenic National Meteorological Services, Hellinikon, Greece, July 2012.
2. Diploma in Music (Mandolin, Violin, Guitar), "Community of Kefallinia and Ithaki", June 1996.
3. Lectures on Music theory at the music school "Community of Kefallinia and Ithaki" in Piraeus, Greece, 1989-1999.