

Final Report for Period: 08/2007 - 07/2008

Submitted on: 11/07/2008

Principal Investigator: Garoufalidis, Stavros .

Award ID: 0715254

Organization: GA Tech Res Corp - GIT

Submitted By:

Garoufalidis, Stavros - Principal Investigator

Title:

Quantum Topology in Vietnam

Project Participants

Senior Personnel

Post-doc

Graduate Student

Undergraduate Student

Technician, Programmer

Other Participant

Research Experience for Undergraduates

Organizational Partners

Other Collaborators or Contacts

Activities and Findings

Research and Education Activities: (See PDF version submitted by PI at the end of the report)

The International Conference on Quantum Topology was held from August 6-August 10 at the Institute of Mathematics of the Vietnamese Academy of Science and Technology in Hanoi, Vietnam. The conference covered all aspects of quantum topology including knots and three manifolds. Topological quantum field theory, Khovanov and Floer homology, asymptotic expansion, and volume conjectures. The conference aims were to educate young researchers in Quantum Topology, discuss new developments in the area, and bring together different points of view of Geometry, Topology, Algebra and Quantum Field Theory. Prior to the conference, one of the organizers (T. Le) gave a 3-week intensive course on quantum topology for local students. Many graduate students took part in the conference. One of them was accepted to join the graduate school at Georgia Tech.

The conference program and other statistical data are provided in a pdf attachment.

Findings:

The conference was a great success. Most talks were of very high

quality and the level of involvement of participants was very good. The talk given by V. Jones was attended by more than 120 people. Since then many papers appeared as (partial) results of discussions/collaborations originating from the conference.

Training and Development:

There was a large body of graduate students, around 25, at the conference. T. Le gave a 3-week introductory course (9 hours of lectures each week) that helped prepare many students for the conference. There were also 5 graduate students not from Vietnam, and 8 recent PhDs. They all benefited from contact with, and lectures by, research leaders. No doubt new contacts and new collaborations were formed as well. After the conference, some of the students applied to GaTech to study quantum topology.

Outreach Activities:

The proceeding of the conference is almost finished, and will be published as a special issue (No3 of 2008) of Acta Mathematica Vietnamica, with 16 papers from the participants. All papers were fully refereed.

Journal Publications

Books or Other One-time Publications

Web/Internet Site

Other Specific Products

Contributions

Categories for which nothing is reported:

Organizational Partners
 Any Journal
 Any Book
 Any Web/Internet Site
 Any Product
 Any Contribution

Final Report: Quantum Topology in Vietnam: DMS-0715254

PIs: Stavros Garoufalidis and Thang Tu Quoc Le

- (1) **A description of the participant selection process:** For speakers, we looked into the quality of contributed talks, the quality of work. We paid special attention to young PhD and graduate students.
- (2) A list of persons for whom travel funds were provided; (3) institutional address;
- (4) sum awarded.

Participant ⁽²⁾	Institutional Address ⁽³⁾	Sum Awarded ⁽⁴⁾
Archibald, Jana		1636.18
Bar-natan, Dror	University of Toronto	2222.59
Beliakova, Anna	Universitat Zurich	2213.94
Carter, J. Scott	University South Alabama	1520.20
Comstock, Jana	UC Berkeley	1689.70
Gilmer, Patrick	Louisiana State University	434.40
Grossman, Pinhas	Vanderbilt University	311.10
Huynh, Vu		350.00
Jones, Vaughan	UC Berkeley	3263.70
Martinez, Cristina		360.00
Massuyeau, Gwenael	Universite Louis Pasteur	563.20
Moffatt, Iain	University of Waterloo	12.00
Quach Hongler, Cam Van	University of Geneva, Switzerland	2069.79
Van der Veen, Roland	University of Amsterdam	1500.00
		18146.80
	Hanoi bus rental	700.00
Geer, Nathan	Georgia Tech	2000.00
Airfare/Registration		
Stavros Garoufalidis	Georgia Tech	153.20
Partial airfare		21000.00

- (5) **Information on Meeting:** There were around 76 participants from 15 countries, with 40 from Vietnam, and 13 from the US; among them 19 young PhDs. Some countries represented were Canada, Denmark, France, Italy, Japan, Jordan, Korea, the Netherlands, Switzerland, and Zurich. There were 25 talks presented: 15 1-hour talks and 10 40-minute talks.

Statistics:

Participants: 76

Invited speakers: 25

Graduate students: around 30

Recent PhD: 8

Organizer

Diep, Do Ngoc

Dung, Nguyen Viet

Khoi, Vu The

Garoufalidis, Stavros

Le, Thang

*Vietnamese Academy of Science and Technology

Institutional Address

Institute of Mathematics, VAST*

Institute of Mathematics, VAST

Institute of Mathematics, VAST

Georgia Tech

Georgia Tech

Scientific committee

C. Gordon

University of Texas, Austin

V. Jones

University of California, Berkeley

V. Turaev

University of Strasbourg

Organizational partners:

Georgia Institute of Technology

Institute of Mathematics, VAST, Hanoi

(Vietnamese Academy of Science and Technology)

Other sources of financial support:

NSF Grant for the conference

Institute of Mathematics, Vietnamese Academy of Science and Technology

Georgia Institute of Technology, Research Foundation

International Center for Theoretical Physics (Trieste, Italy)

Saigon CTT

FPT Corporation (Vietnam)

INTERNATIONAL CONFERENCE ON QUANTUM TOPOLOGY
Institute of Mathematics, VAST, Hanoi, August 6-10, 2007.

PROGRAM (updated August 6)

All lectures will be in Room 301.

Mon 6	08:00-09:25	Registration in the entrance Hall.
	09:25-09:30	Opening speech.
	09:30-10:30	Vaughan Jones, <i>The graded algebras of a planar algebra</i>
	10:30-11:00	Coffee break
	11:00-12:00	Hitoshi Murakami, <i>A generalization of the volume conjecture</i>
	12:00-2:00	Lunch
	2:00-3:00	Andrew Kriker, <i>A combinatorial proof of wheeling from Chern-Weil theory</i>
	3:00-3:30	Coffee break
	3:30-4:10	Alexis Virelizier, <i>Hopf monads and quantum invariants</i>
	4:20-5:00	Vu Huynh, <i>Twisted Reidemeister torsion for twist knots</i>
Tue 7	08:30-09:30	Patrick Gilmer, <i>Congruence and Similarity for 3-manifolds</i>
	09:30-10:00	Coffee break
	10:00-11:00	Scott Carter , <i>Diagrammatic and Algebraic Cohomology Theories</i>
	11:10-11:50	Daniel Moskovich, <i>Yoshida's Abelianization Explained</i>
	12:00-2:00	Lunch
	2:00-3:00	Dylan Thurston, <i>Combinatorial Heegaard-Floer Holomology</i>
	3:00-3:30	Coffee break
	3:30-4:10	Atsushi Ishii , <i>The pole diagram and the Miyazawa polynomial</i>
4:20-5:00	Khaled Qazaqzeh , <i>Integral Lattices of the SU(2)-TQFT-Modules</i>	
Wed 8	08:30-09:30	Stavros Garoufalidis, <i>Physics is wrong. WZ is right: Concrete asymptotics of classical and quantum 6j-symbols.</i>
	09:30-10:00	Coffee break
	10:00-11:00	Pinhas Grossman , <i>Quadrilaterals of Subfactors</i>
	11:10-11:50	Tadayuki Watanabe , <i>Higher dimensional clasps and configuration space integral characteristic classes</i>
	12:00-2:00	Lunch
	2:00-6:00	Excursion

Thu 9	08:30-09:30	Dror Bar-Natan , <i>Following Lin: Expansions for Groups</i>
	09:30-10:00	Coffee break
	10:00-11:00	George Thompson , <i>The Murakami and Rozansky-Witten Invariants of a Knot</i>
	11:10-11:50	Abhijit Champanerkar , <i>Mahler measure of the A-polynomial</i>
	12:00-02:00	Lunch
	02:00-3:00	Anna Beliakova, <i>Unified invariants of rational homology 3-spheres</i>
	3:00-3:30	Coffee break
	3:30-4:10	Nathan Geer , <i>Renormalized quantum invariants</i>
	4:20-5:00	Roland van der Veen , <i>The volume conjecture for augmented links</i>
	Fri 10	08:30-09:30
09:30-10:00		Coffee break
10:00-11:00		Gwenael Massuyeau , <i>A functorial LMO invariant for Lagrangian cobordisms</i>
11:10-11:50		Iain Moffatt , <i>The Tutte polynomial in knot theory</i>
12:00-2:00		Lunch
2:00-3:00		Cam Van Quach Hongler , <i>On the achiral diagram of alternating knots</i>
3:00-3:30		Coffee break
3:30-4:30		Cameron Gordon , <i>Heegaard genus and Dehn filling</i>