

Gauge Theory and Categorification

Monday March 6, 2017

- 8:00–8:50 *Check-in/Breakfast (hosted by IPAM)*
- 8:50–9:00 *Welcome and Opening Remarks*
- 9:00–9:50 **Cliff Taubes** (Harvard University)
The behavior of sequences of solutions to the Vafa-Witten equations
- 10:00–10:15 *Break*
- 10:15–11:05 **Rafe Mazzeo** (Stanford University)
The Kapustin-Witten equations with Nahm Pole Boundary Conditions
- 11:15–11:30 *Break*
- 11:30–12:20 **Michael Singer** (University College London)
Monopoles and the Sen Conjecture
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Mikhail Khovanov** (Columbia University)
How to categorify the ring of integers localized at two
- 3:00–3:15 *Break*
- 3:15–4:05 **Raphael Rouquier** (University of California, Los Angeles (UCLA))
Higher representations and low-dimensional topology
- 5:00–6:00 **Edward Witten** (Institute for Advanced Study)
Research Lecture: From Gauge Theory to Khovanov Homology via Floer Theory
- 6:00–7:00 *Reception (Location: IPAM Lobby)*

Tuesday March 7, 2017

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Yuuji Tanaka** (Osaka University)
Vafa-Witten invariants on projective surfaces
- 10:00–10:15 *Break*
- 10:15–11:05 **Andriy Haydys** (Universität Bielefeld)
Topology of the blow up set for the Seiberg-Witten monopoles with multiple spinors
- 11:15–11:30 *Break*

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- 11:30–12:20 **Tomasz Mrowka** (Massachusetts Institute of Technology)
An approach to the Four Color Theorem via Gauge Theory and Three Manifold Topology
- 12:30–2:30 *Lunch (on your own)*
- 2:30 **Edward Witten** (Institute for Advanced Study)
TALK CANCELLED
- 2:30–3:30 **Problem Session**
Problem Session #1
- 3:30–4:00 *Break*
- 4:00–5:00 **Problem Session**
Problem Session #2

Wednesday March 8, 2017

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Kenji Fukaya** (Simons Center - SUNY)
How can we use virtual fundamental chain in Gauge theory
- 10:00–10:15 *Break*
- 10:15–11:05 **Mohammed Abouzaid** (Columbia University)
Symplectic topology and Khovanov homology
- 11:15–11:30 *Break*
- 11:30–12:20 **Paul Seidel** (Massachusetts Institute of Technology)
Lefschetz fibrations and SL_2 -connections
- 12:30–2:00 *Lunch (on your own)*
- 2:00–2:50 **Anton Kapustin** (California Institute of Technology)
Fermionic phases of matter and bosonization
- 3:00–3:15 *Break*
- 3:15–4:05 **Sergei Gukov** (California Institute of Technology)
From HM-to to Khovanov homology of 3-manifolds
- 5:00–6:00 **Edward Witten** (Institute for Advanced Study)
CANCELLED: Public Lecture: An Introduction to the SYK Model

Thursday March 9, 2017

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Catharina Stroppel** (Rheinische Friedrich-Wilhelms-Universität Bonn)
Representation theory of Lie supergroups, Springer fibers and Khovanov algebras
- 10:00–10:15 *Break*
- 10:15–11:05 **Ben Webster** (University of Virginia)
Symplectic and Koszul duality
- 11:15–11:30 *Break*
- 11:30–12:20 **Joel Kamnitzer** (University of Toronto)
Quantum geometric Satake correspondence and knot homology
- 2:30–3:20 **Hiraku Nakajima** (Kyoto University)
Towards a mathematical definition of Coulomb branches of 3 -dimensional $N=4$ gauge theories
- 3:30–4:00 *Break*
- 4:00–4:50 **David Ben-Zvi** (University of Texas at Austin)
Moduli of Vacua and Categorical representations

Friday March 10, 2017

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00–9:50 **Hartmut Weiss** (Christian-Albrechts Universität Kiel)
The asymptotic geometry of the Higgs bundle moduli space
- 10:00–10:15 *Break*
- 10:15–11:05 **Sergey Cherkis** (University of Arizona)
Monad for Instantons on multi-Taub-NUT and Bows
- 11:15–11:30 *Break*
- 11:30–12:20 **Andrew Neitzke** (University of Texas at Austin)
Abelianization in complex Chern-Simons theory and a hyperholomorphic line bundle
- 12:30–2:30 *Lunch (on your own)*
- 2:30–3:20 **Thomas Walpuski** (Massachusetts Institute of Technology)
Isolated singularities of Hermitian Yang-Mills connections
- 3:30 *Conclusion*

