

KAVLI INSTITUTE FOR THEORETICAL PHYSICS
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KITP Conference: Resurgence in Gauge and String Theory

(Oct 30 - Nov 2, 2017)

Coordinators: Gökçe Başar, Christopher Howls, Wolfgang Lerche, and Ricardo Schiappa

Monday, Oct 30, 2017

**Nonperturbative Effects in Quantum Gravity and in Gauge Theory, Chair: Ricardo Schiappa
(U of Lisbon)**

8: 50am Lars Bildsten (KITP)	Welcome
9: 00am Neil Turok (Perimeter Inst.)	Semiclassical Gravity and Quantum de Sitter
9: 45am Jared Kaplan (Johns Hopkins U)	Nonperturbative Effects in G _N and the Information Paradox
10: 30am	Morning Break
11: 00am Sergei Gukov (Caltech)	Resurgence for Non-Gaussian Saddles
11: 45am Aleksey Cherman (U Washington)	QCD on a Small Circle
12: 30pm	Lunch Break
2: 00pm Simeon Hellerman (U. Tokyo)	Resurgence, Localization, and Bootstrap in N=2 Superconformal Field Theories
2: 45pm Masahito Yamazaki (KIPMU)	Stokes Graphs, Quivers and BPS Graphs
3: 30pm	Afternoon Break
4: 00pm Alexander Gorsky (Kharkevich Inst.)	Near the Poles of the Nekrasov Partition Function
4: 45pm Amir-Kian Kashani-Poor (ENS Paris)	epsilon-Deformed Supersymmetric Gauge Theories and WKB
5: 30pm	SHUTTLE TO BWSCI

Tuesday, Oct 31, 2017

Resurgence and String Theory, Chair: Valentina Forini (Humboldt U)

9: 00am Alba Grassi (Simons Ctr Stony Brook)	The Topological String / Spectral Theory Duality: A Brief Overview
9: 45am Marcos Mariño (U Geneva)	Semiclassical Decoding
10: 30am	Morning Break
11: 00am Marcel Vonk (U Amsterdam)	Physics and Mathematics of 2d Gravity: Movability and Modularity in Painlevé I
11: 45am Inês Aniceto (Jagiellonian U)	Physics and Mathematics of 2d Gravity: Stokes and Large N Anti-Stokes
12: 30pm	Lunch Break

Nonperturbative Effects in Gauge Theory and in Holography

2: 00pm Norisuke Sakai (Keio U)	Resurgence in Quantum Mechanics
2: 45pm Masazumi Honda (Weizmann Inst.)	Deconstructing Exact Results in Supersymmetric Gauge Theories

3:30pm

Afternoon Break

4:00pm Michal Heller (Albert Einstein Inst.)

Trans-Series and Hydrodynamics Far From Equilibrium

4:45pm Alexandre Streicher (UCSB)

Hints of Resurgence from Random Matrix Theory

5:30pm

RECEPTION

6:00pm

SPECIAL EVENTS DINNER

8:00pm

SHUTTLE TO BWSCI**Wednesday, Nov 01, 2017****Mathematical Foundations, Applications, and Quantization, Chair: Christopher Howls (Southampton)**

9:00am Ovidiu Costin (Ohio State)

The Mathematical Theory of Resurgence and Resummation, and Their Applications in Mathematics and Physics

9:45am David Sauzin (SNS Pisa)

Introduction to Co-Equational/Parametric Resurgence

10:30am

Morning Break

11:00am Carl Bender (Washington U)

Nonlinear Eigenvalue Problems

11:45am Yumiko Takei (Kobe U)

WKB Analysis via Topological Recursion for (Confluent) Hypergeometric Differential Equations

12:30pm

Lunch Break**Session Chair: Gerald Dunne (UConn)**

2:00pm Karen Yeats (U. Waterloo)

An Overview of Renormalization Hopf Algebras

2:45pm André Voros (CEA Saclay)

General Quantum Resurgence Surmised with Gutzwiller's Trace Formula

3:30pm

Afternoon Break

4:00pm Panel Discussion

Universality of Resurgence in Mathematics and Physics

4:45pm Panel Discussion

Universality of Resurgence in Mathematics and Physics

5:30pm

RECEPTION

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SHUTTLE TO BWSCI**Thursday, Nov 02, 2017****Lattice, Thimbles, and Gauge Theory, Chair: Gökçe Başar (UIC)**

9:00am Andrei Alexandru (GWU)

Sign Problem and the Generalized Thimble Method

9:45am Paulo Bedaque (Maryland)

Generalized Thimble Method and Its Extensions

10:30am

Morning Break

11:00am Pavel Buividovich (U Regensburg)

Convergent Weak-Coupling Expansions for Strongly Interacting Field Theories from Diagrammatic Monte Carlo Simulations

11:45am Francesco Di Renzo (Parma & INFN) High-Order Computations in Numerical Stochastic Perturbation Theory: An Intriguing Opportunity for Probing Resurgence

12:30pm **Lunch Break**

Nonperturbative Effects and Anomalies, Chair: Mithat Ünsal (NC State)

2:00pm Yuya Tanizaki (RBRC) Anomaly Matching and Circle Compactification

2:45pm Zohar Komargodski (Weizmann Inst.) Anomalies and Quantum Field Theory

3:30pm **Afternoon Break**

4:00pm All Speakers Q&A Discussion

4:45pm All Speakers Q&A Discussion

5:30pm **CONFERENCE END-SHUTTLE TO BWSCI DEPARTS IMMEDIATELY AFTER THE CONFERENCE ENDS *Also available to SB Airport and SB Airbus, Goleta location (See Registration Desk to sign up.)**