

2023 Simons Physics Summer Workshop - WEEK 4

**Events for:
Monday, July 17th - Friday, July 21st**

Monday, July 17th

9:00am **Physics Summer Workshop: Breakfast - SCGP Cafe**

Title: Breakfast

10:00am **Physics Summer Workshop: Samson Shatashvili - SCGP 102**

Speaker: Samson Shatashvili (Year Represented: 2010)

Abstract: TBA

10:30am **Physics Summer Workshop: Coffee Break - SCGP Cafe**

Title: Coffee Break

12:00pm **Physics Summer Workshop: Lunch - SCGP Cafe**

Title: Lunch

3:30pm **Physics Summer Workshop: Tea - SCGP Cafe**

Title: Tea

Tuesday, July 18th

9:00am **Physics Summer Workshop: Breakfast - SCGP Cafe**

Title: Breakfast

10:00am **Physics Summer Workshop: Mina Aganagic - SCGP 102**

Speaker: Mina Aganagic (Year Represented: 2015)

Title: Homological link invariants from Floer theory

Abstract: The link categorification problem is to give a uniform categorification of Chern-Simons link invariants which originates from geometry and physics. The resulting theory, predicted by string theory, generalizes Heegard-Floer theory from $gl(1|1)$ to other Lie (super-)algebras. The resulting category of A-branes has many special features which render it solvable explicitly. In this talk, I will describe how the theory is solved, and how homological link invariants arise from it. I will focus on the two simplest cases, the $gl(1|1)$ theory itself, and the $su(2)$ theory, categorifying respectively the Alexander and the Jones polynomials.

10:30am **Physics Summer Workshop: Coffee Break - SCGP Cafe**

Title: Coffee Break

12:00pm **Physics Summer Workshop: Lunch - SCGP Cafe**

Title: Lunch

4:00pm **Workshop Tea - SCGP Lobby**

Title: Tea

5:00pm **- SCGP - Auditorium 103**

Title: Summer Concert Series Performance by Mikael Darmanie and Yezu Woo

Wednesday, July 19th

9:00am **Physics Summer Workshop: Breakfast - SCGP Cafe**

Title: Breakfast

11:00am **Physics Summer Workshop: Beach Talk - Irene Valenzuela - Smith Point County Park, 1 William Floyd Pkwy, Shirley, NY 11967, USA**

Speaker: Irene Valenzuela (Year Represented: 2022)

Title: String Dualities and the Distance Conjecture

Abstract: TBA

Thursday, July 20th

9:00am **Physics Summer Workshop: Breakfast - SCGP Cafe**

Title: Breakfast

10:00am **Physics Summer Workshop: Sean Hartnoll - SCGP 102**

Speaker: Sean Hartnoll (Year Represented: 2004)

Title: Emergent Area Laws from Entangled Matrices

Abstract: Locality is hardwired into quantum field theoretic descriptions of nature. However, in holographic duality, local interactions on a dynamical spacetime emerge from large N matrices where no locality need be manifest in the microscopic Hamiltonian. The emergence of locality from matrix theories is well-established but not well-understood. In recent years it has been appreciated that locality is closely tied up with so-called “area law” entanglement of the microscopic degrees of freedom. I will discuss a particularly robust notion of entanglement in matrix theories that is rooted in an underlying $SU(N)$ Gauss law constraint and show how simple models of matrix, or ‘fuzzy’ geometry contain area law entanglement.

10:30am **Physics Summer Workshop: Coffee Break - SCGP Cafe**

Title: Coffee Break

12:00pm **Physics Summer Workshop: Lunch - SCGP Cafe**

Title: Lunch

3:30pm **Physics Summer Workshop: Tea - SCGP Cafe**

Title: Tea

5:00pm **Workshop Banquet - Simons Center Cafe - Simons Center Cafe**

Title: Banquet Dinner

Friday, July 21st

9:00am **Physics Summer Workshop: Breakfast - SCGP Cafe**

Title: Breakfast

10:00am **Physics Summer Workshop: Zohar Komargodski - SCGP 102**

Speaker: Zohar Komargodski (Year Represented: 2018)

Title: Monopoles as Line Defects, Zero Modes, Scattering, and Generalized Symmetries

Abstract: TBA

10:30am **Physics Summer Workshop: Coffee Break - SCGP Cafe**

Title: Coffee Break

12:00pm **Physics Summer Workshop: Lunch - SCGP Cafe**

Title: Lunch

3:30pm **Physics Summer Workshop: Tea - SCGP Cafe**

Title: Tea