Workshop Schedule

Events for:
Monday, October 22nd - Friday, October 26th

Monday, October 22nd

9:30am **Jim Gates - SGCP 102**

Title: Uncovering SUSY Freudenthal Type Formulae Without Eigenvalues, Eigenvalues, or the Jordan-Chevalley Decomposition

Abstract: Using an analogy to known concepts in Lie Algebras, we argue that SUSY representation theory can be unlocked using the holoraumy concept associated with adinkras.

10:30am **Coffee Break**

11:00am **Warren Siegel - SCGP 102**

Title: Is F-theory a theory?

Abstract: Probably. Originally it was proposed as a generalization of M-theory, whose existence is also moot. Nowadays it is usually used only to describe supergravity solutions, for purposes of compactification. We discuss it as an extension of string theory and M-theory that incorporates exceptional supergravities as its massless sector.

12:15pm **Radu Roiban - SCGP 102**

1:15pm **Lunch**

2:30pm **Stefan Vandoren - SCGP 102**

Title: Four dimensional black hole entropy from F-theory.

3:30pm **Tea**

Tuesday, October 23rd

9:30am **Sergei Kuzenko - SCGP 102**

Title: Nonlinear sigma models with anti-de Sitter supersymmetry in diverse dimensions.

Abstract: We review the target space geometry and multiplet structure of nonlinear sigma models with AdS supersymmetry in diverse dimensions.

10:30am **Coffee Break**

11:00am **Rikard von Unge - SCGP 102**

Title: Yang-Mills theory in Projective Superspace

Abstract: We give a formulation of Yang-Mills theory in Projective Superspace. In particular, we find an expression for the field strength in terms of an unconstrained prepotential.

12:00pm **Lunch**

2:15pm **Erik Verlinde - SCGP 102**

Title: The symplectic geometry of AdS/CFT.

3:30pm **Tea**

4:00pm **Jose Figueroa-O'Farrill - SCGP 102**

Title: Killingsuperalgebras: their uses and algebraic structure.

Abstract: To every supersymmetric supergravity background there is a associated a Lie superalgebra generated by the Killing spinors: the Killing superalgebra. I will review its definition, explain its algebraic structure and illustrate some of its uses.

Wednesday, October 24th

9:30am **Nathan Seiberg - SCGP 102**

Title: Confinement, De-confinement, and 3? Chern-Simons Theory

10:30am **Coffee Break**

11:00am **Cumrun Vafa - SCGP 102**

Title: Supersymmetric Landscape and the Swampland

12:00pm **Lunch**

2:15pm **Edward Witten - SCGP 102**

Title: Anomalies And Nonsupersymmetric D-Branes'

3:30pm **Tea - SCGP Lobby**

5:30pm **Ulf Lindstrom - SCGP 102**

Title: Martin Rocek in and out of Superspace.

6:30pm **Workshop Banquet - SCGP Cafe**

Thursday, October 25th

9:30am **Bernard de Wit - SCGP 102**

Title: The c-map beyond the classical level.

10:30am **Coffee Break**

11:00am **Chris Hull - SCGP 102**

Title: Non-Geometrical Aspects of Supersymmetry

Abstract: String theory duality symmetries can be used to glue together different patches of a solution to construct what have been called ‘non-geometric spaces’; these can be good solutions of string theory even though they would not be allowed in supergravity. In this talk, some recent work with Israel and Sarti will be described that constructs non-geometric analogues of Calabi-Yau manifolds in which patches are glued together with mirror symmetry transformations to construct a ‘mirrorfold'. These ‘non-geometric Calabi-Yau’ solutions preserve the same amount of supersymmetry as Calabi-Yau spaces, but typically have fewer moduli and so lead to models with fewer light particles.

12:00pm **Lunch**

2:15pm **Marco Gualtieri - SCGP 102**

Title: Holomorphic Poisson structures and generalized Kähler metrics

Abstract: Since the introduction of generalized Kahler geometry in 1984 by Gates, Hull, and Rocek in the context of two-dimensional supersymmetric sigma models, we have lacked a general understanding of the degrees of freedom inherent in the geometry. In particular, the description of a usual Kahler structure in terms of a complex manifold together with a local Kahler potential function is not available for generalized Kahler structures, despite many positive indications in the literature over the last decade. I will explain how holomorphic Poisson geometry may be used to solve this problem and to obtain new constructions of generalized Kahler metrics. This is based on the paper arXiv:1804.05412 [math.DG], joint with Francis Bischoff and Maxim Zabzine.

3:30pm **Tea**

4:00pm **Nigel Hitchin - SCGP 102**

Title: Semiflat hyperkaehler manifolds and their submanifolds.

Friday, October 26th

9:30am **Simone Giombi - SCGP 102**

Title: Half-BPS Wilson line and defect 1d CFT

Abstract: The half-BPS Wilson line in N=4 SYM preserves a d1 superconformal symmetry and can be viewed as a conformal defect of the 4d gauge theory. I will review some recent results for the "defect CFT1" defined by the correlation functions of operators inserted on the line, and its holographic duality to the string sigma model expanded around the AdS2 minimal surface. In particular, I will explain how to use supersymmetric localization to derive exact results for the correlation functions of a class of protected defect primaries of arbitrary length. At strong coupling, the localization results are shown to precisely match the holographic calculation using the dual AdS2 worldsheet description.

10:30am **Coffee Break**

11:00am **Arkady Tseytlin - SCGP 102**

Title: On Wilson loops in N=4 SYM

Abstract: We shall review some recent work (arXiv:1804.08925, 1804.02179, 1712.06874) on supersymmetric and non- supersymmetric Wilson loops in N=4 SYM.

12:00pm **Lunch**

3:30pm **Tea**