

David Carchedi | George Mason University

Title: Derived Manifolds in Quantum Field Theory

Abstract: The aim of this talk is to advertise joint work with Owen Gwilliam where we construct the space of solutions to Lagrangian gauge field theories as infinite dimensional smooth stacks. We will start by showing how path integration techniques in quantum field theory are intimately related to derived differential geometry. We will then give a rigorous definition of derived manifolds via a universal property, and show how it gives rise to a natural concrete model. Finally, we will sketch the construction of the moduli stacks of solutions in our setting, and analyze formal neighborhoods thereof for Chern-Simons and Yang-Mills. No familiarity with field theory will be assumed.