Contribution ID: **16**   Type: **Theme 1: Non-relativistic session**

M(atrix)-Theory from Nonrelativistic Sigma Models

Tuesday 29 April 2025 14:30 (30 minutes)

I will talk about two classes of nonrelativistic sigma models and their roles in M-theory and matrix theory. I will start with the quantum critical supermembrane and its quantization, which is described by a renormalizable three-dimensional sigma model at a z=2 Lifshitz point. This model provides a natural candidate high-energy completion of the supermembrane in M-theory, where the latter is described by a nonrenormalizable sigma model that is relativistic. A more standard approach to the quantization of supermembranes is via matrix theory. I will show that the fundamental string associated with matrix theory is described by a two-dimensional Carrollian sigma model. I will illustrate how these two approaches to M-theory are related to each other.

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