Contribution ID: **99** Type: **Invited talk**

Active Quantum Particles from Engineered Dissipation

Thursday, 16 April 2026 14:00 (20 minutes)

While the physics of classical active particles—such as bacteria,
synthetic Janus colloids, and bird flocks—is well-established via models like Active Brownian Motion (ABM), the extension of these principles to the quantum regime has only recently gained traction. This talk will first review the fundamental principles of classical self-propulsion, highlighting unique features of individual particle dynamics. We will then transition to new frameworks for Quantum Active Matter from Engineered Dissipation, presenting three specific models and demonstrating that they all recover the hallmark features of active motion.

Talk based on the preprint with the same title, by
Jeanne Gipouloux, Matteo Brunelli, Leticia Cugliandolo, Rosario Fazio, Marco Schirò
arXiv:2603.19094
https://arxiv.org/abs/2603.19094

Primary author: CUGLIANDOLO, Leticia F. (Sorbonne Université, Paris)

Presenter: CUGLIANDOLO, Leticia F. (Sorbonne Université, Paris)

Session Classification: Keynote

Track Classification: Statistical Physics