

PHYSICAL MATHEMATICS SEMINAR

Active flow networks for autonomous microfluidics

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ABSTRACT:

The autonomous flow properties of chemically or optically powered active matter make it an increasingly attractive component in material design. To fully harness its potential, however, the turbulent nature of active matter must be tamed. Geometric confinement has emerged as an excellent tool for this, allowing complex yet controllable behaviours to be engineered by careful design of the flow environment. Inspired by recent experiments on geometrically-realised bacterial ferromagnets, I will describe how theoretical modelling of active flow in networks gives a new framework for designing autonomous microfluidic logic devices driven by bacterial fluids, active liquid crystals or chemically engineered motile colloids.

TUESDAY, NOVEMBER 15, 2016

2:30 PM

Building 4, Room 257

*Reception following in Building 2, Room 290
(Math Dept. Common Room)*

<http://math.mit.edu/seminars/pms/>