PHYSICAL MATH SEMINAR

LANE FORMATION IN COMPLEX ACTIVE FLOWS

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ABSTRACT:

Lane formation is a paradigmatic example of spontaneous organization occurring in active counterflows, which has been observed in diverse contexts including pedestrian traffic and driven colloids. A typical experimental or simulation set-up comprises two groups moving in opposite directions who, as a result of collisions or collision avoidance manoeuvres, achieve segregation into lanes parallel to the direction of motion. In my talk, I will present a new kinetic theory which gives insight into the physical origin of lanes and make predictions about the rate at which the lanes emerge from a homogeneous crowd. To complement the theoretical analysis, I will also discuss a suite of experiment with human crowds confirming some new dynamical phenomena, such as tilted and curved lanes. Pretty videos of people wearing paper hats will be provided.

TUESDAY, DECEMBER 5, 2023
2:30 PM – 3:30 PM
Building 2, Room 449

https://math.mit.edu/pms/

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