

## Hydrodynamics of Flocks and Crowds

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We are active matter. We can bend our body, walk jump and swim without relying on external drives to actuate our motion. Beyond the specific case of human bodies, active matter encompasses all self-organised structures assembled from units independently driven far from equilibrium. In this talk I will show how to think about active materials as continua. I will first show how to describe the hydrodynamics of flocking active matter, fluids assembled from living or synthetic units which spontaneously propel along the same average direction. Combining experiments simulations and theory I will then elucidate the elementary topologic singularities of their polar flows, and explain why flocking matter realizes one of the most stable broken symmetry phase found in nature. Finally, I will use the same hydrodynamic concepts and tools to effectively describe human crowds as active continua. In particular, I will show how to construct a predictive hydrodynamic description of strongly polarised crowds from quantitative measurements performed on groups of marathon runners.

**Wednesday, October 6<sup>th</sup>, 2021 at 2:15 pm**

**MPIDS, video conference at [www.zoom.us](http://www.zoom.us)**

**Meeting ID: 959 2774 3389**

**Passcode: 651129, [direct link](#)**



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