

LadHyX Seminar – March 12th, 10:45

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**Eukaryotic flagellar synchronisation from mechanics to hydrodynamics**

Cilia and flagella are active slender organelles highly conserved across the eukaryotic world and involved in a wide spectrum of different biological activities. When multiple flagella are close to each other, they often display striking degrees of coordination. This coordination arises from intra-flagellar coupling, but where is the coupling coming from? Taking ciliated green algae as a paradigmatic example, here I will discuss our current understanding of the importance of both hydrodynamics and direct mechanical coupling in flagellar synchronisation. I will then present the results of new experiments which allow us to selectively block hydrodynamic coupling between the flagella of a single cell and therefore probe directly the role of hydrodynamics in their synchronisation. These results reveal a link between the type of coupling and the resulting synchronisation state, and suggest a previously unrecognised mechanism by which flagella can sense mechanical stimuli.