## **Physics of Microbial Motility**



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## **Structural Colour from Bacteria Collective Motion**

We report a type of marine, non-pathogenic bacteria, Flavobacterium Iridescent 1 (IR1), that grows into a colony in active liquid crystal phase with intense structural colour. We show that these rod-like gliding bacteria organize hierarchically, from bacteria clusters, to monolayer, multi-layers and finally into large scale chiral vortices up to one millimeter in diameter. We demonstrate that the bacteria motility gives rise to three-dimensional ordered nanostructure that constructively reflects incident light, resulting in the bright iridescent colour observed in the colony [1-2]. We also illustrate how the bacteria colony adapts to confinement of different geometries.

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