

# **A growing bacterial microcolony as a "Hubble active nematic"**

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We study the growth of micro-colonies of the Gram-negative enteric bacterium *Escherichia coli* embedded into the surface of soft agarose. The time dependent organisation of cells is analysed as a 'living liquid crystal'. We find that topological defects are generated from the bulk of the colony and spread to the periphery, where cells are aligned parallel to the boundary by 'active anchoring'. The observations have similarities with literature descriptions of 'active nematics', but simulations and simple theoretical modelling suggest that the physical mechanisms subtly differ. Moreover, the growing colony exhibits a buckling instability at a critical size. These novel features are traceable back to the non-conservation of the number of active particles. A growing bacterial colony therefore belongs to a new universality class of active nematics.