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**Emergent Vortex Patterns in Systems of Self-Propelled, Chiral Particles** LORENZ HUBER, JONAS DENK, EMANUEL REITHMANN, ERWIN FREY, Ludwig-Maximilians University Munich — Self-organization of FtsZ polymers is vital for Z-ring assembly during bacterial cell division, and has been studied using reconstituted in vitro model systems. Employing Brownian dynamics simulations and a Boltzmann approach, we model FtsZ polymers as active particles moving along chiral circular paths. With both theoretical approaches we find self-organization into vortex structures and characterize different states in parameter states. Our work demonstrates that these patterns are robust and are generic for active chiral matter. Moreover, we show that the dynamics at the onset of pattern formation is described by a generalized complex Ginzburg-Landau equation.

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