

Abstract Submitted  
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**Self-assembly of microtubules and motors**<sup>1</sup> IGOR ARANSON, Argonne National Laboratory, LEV TSIMRING, University of California, San Diego — We derive a model describing spatio-temporal assembly of an array of microtubules interacting via molecular motors. Starting from a stochastic model of inelastic polar rods with a generic anisotropic interaction kernel we obtain a set of equations for the local rods concentration and orientation. At large enough mean density of rods and concentration of motors, the model describes orientational instability. We demonstrate that the orientational instability leads to the formation of vortices and (for large density and/or kernel anisotropy) asters seen in recent experiments.

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