Stochastic continuum theory of active nematics SHRADHA
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Delhi, 110067, India, SRIRAM RAMASWAMY, Centre for Condensed Matter The-
ory, Department of Physics, Indian Institute of Science, Bangalore, India — We
derive a stochastic continuum theory of active nematics by direct coarse-graining
of a generic microscopic model and study it numerically. This allows to clarify the
microscopic origin of the various terms found and to determine the non-trivial struc-
ture of the noises. We show in particular that two terms coupling density and order
the non-equilibrium active current argued before to be at the origin of giant density
fluctuations, and a multiplicative conserved noise are necessary to obtain a faithful
description of the original model.

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