Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

MHD Simulation-driven kinematic mean-field models of the solar cycle CORINNE SIMARD, AMÉLIE BOUCHAT, Université de Montréal, ÉTIENNE RACINE, Canadian Space Agency — Using numerical data from global magnetohydrodynamical simulations of solar convection, I extract all nine components of the full alpha-tensor relating the mean electromotive force to the mean cycling magnetic field arising in the simulation. I then use this alpha-tensor as input to a conventional kinematic $\alpha^2\Omega$ mean-field model, and compare the behavior of the resulting cyclic solutions to those observed in the fully dynamical numerical simulations. This comparison helps to disentangle contributions to cyclic variations in the numerical simulations tied to the dynamical variations of the large-scale flows, from those driven by the turbulent electromotive force.

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Date submitted: 25 Jul 2011 Electronic form version 1.4