Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Diffusive properties of Brownian agents interacting via metric-free aligning-forces[1] FRANCISCO J. SEVILLA, LUIS ALBERTO GÓMEZ NAVA, JOSÉ LUIS MIRADA OLVERA, MIGUEL ALEJANDRO PÉREZ CONTRERAS, Instituto de Física, Universidad Nacional Autónoma de México — The diffusive properties of active particles moving at constant speed in two dimensions andinteracting through metric-free aligning-forces are studied. Exponential and scale free networks are used as the backbone for the interactions among agents. Averages over the trajectories of hundred thousand agents are performed to compute the single particle mean-square displacement, and the kurtosis of the spatial distribution, as a function of time. These quantities provide a mean to evaluate the effects of interaction. In contrast to what one would expect, the diffusion constant, increases with the intensity of the alignment.

[1]FJS, LAGN. JLMO and MAPC acknowledge support from PAPIIT-UNAM through the grant IN113114.

Francisco J. Sevilla
Instituto de Física, Universidad Nacional Autónoma de México

Date submitted: 09 Nov 2014 Electronic form version 1.4