

# UCCS Mathematics Colloquium

Thursday, October 21<sup>st</sup>  
12:30 pm – 1:30 pm  
(Refreshments at 12:15)

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## **An Interacting Branching Particle Model**

**Abstract:** We consider an interacting branching Brownian motion, where every particle is attracted to/repulsed from every other particle. This is actually equivalent to being attracted to/repulsed from the current center of mass (COM).

It turns out that the COM converges to a final position and, in the attractive case, the mass normalized particle system converges to the invariant density of an Ornstein Uhlenbeck process around the final position of the COM. For the repulsive case we only have an educated guess (conjecture) which involves a phase transition in the local behavior of the system.

Similar questions/results for super-Brownian motion will be discussed as well.