1163-91-1067 **Daewa Kim*** (daewa.kim@mail.wvu.edu), Morgantown, WV , and **Annalisa Quaini**. *Coupling kinetic theory approaches for pedestrian dynamics with disease contagion model.* Preliminary report.

The goal of this talk is to study infectious disease spreading in a medium-size population occupying a confined environment. For this purpose, we consider a kinetic theory approach to model crowd dynamics in bounded domains and couple it to a kinetic equation to model contagion. The interactions of a person with other pedestrians and the environment are modeled by using tools of game theory. The pedestrian dynamics model allows to weight between two competing behaviors: the search for less congested areas and the tendency to follow the stream unconsciously in a panic situation. Each person in the system has a contagion level that is affected by the people in their neighborhood. For the numerical solution of the coupled problem, we propose a numerical algorithm that at every time step solves one crowd dynamics problem and one contagion problem, i.e. with no sub-iterations between the two. We test our coupled model on a problem involving a small crowd walking through a corridor. Future developments include a more realistic contagion model and extension of the coupled problem to two spatial dimensions, which will allow us to test real-world scenarios and draw more interesting conclusions. (Received September 14, 2020)