

April 29<sup>th</sup>, 2019

**KAP 245**

3:30 P.M. – 4:30 P.M.

**Marcel Nutz**  
(Columbia University)

**“Convergence to the Mean Field Game Limit:  
A Case Study”**

**Abstract:** Mean field games are used as approximations to  $n$ -player games with large  $n$ . Indeed,  $n$ -player Nash equilibria are known to converge to their mean field counterpart when the latter is unique. In this talk we study a specific stochastic game where both the finite and infinite player versions naturally admit multiple equilibria. It turns out that mean field equilibria satisfying a transversality condition are indeed limits of  $n$ -player equilibria, but we also find a complementary class of equilibria that are not limits, thus questioning their interpretation as large  $n$  equilibria.

(Joint work with Jaime San Martin and Xiaowei Tan)