



# JOURNEY OF YOUNG PDEst (PDE SEMINAR)

## From Newton Dynamics to Vlasov Equations

송시현 (Yonsei University)

We consider the Newtonian dynamics of  $N$  particles interacting pairwise. Although the model is in itself theoretically perfect, computational difficulties motivate its mean field approximation scheme as the number of particles tends to infinity. We proceed by showing that the empirical measures associated to the particle system solve the Vlasov equation. Then, using standard results from optimal transport theory, we demonstrate stability for the Vlasov equation in Wasserstein-1 distance, thereby proving that the empirical measures associated to the Newtonian system converge to a fixed measure-valued solution to the Vlasov equation under assumptions only on the initial data.

2024. 4. 15. (월) 14:00 - 16:00  
과학관 262호

문의 : 신재용 (sinjaey@yonsei.ac.kr), 이윤정 (yjglee@yonsei.ac.kr),  
구도완 (dowan.koo@yonsei.ac.kr)