

Sergio Frigeri, Weierstrass Institute, Berlin

**Recent results on optimal control for Cahn-Hilliard/Navier-Stokes systems
with nonlocal interactions**

In the first part of the talk we shall recall the main results concerning well-posedness and regularity for the nonlocal Cahn-Hilliard/Navier-Stokes system with different assumptions on the double-well potential, mobility and viscosity. Then, in the situation of regular potential and constant mobility we shall consider a related optimal control problem in 2D. For this case, first order necessary conditions for the existence of the optimal control will be presented. Joint work with E. Rocca and J. Sprekels.