Department of Mathematics

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Scientific Computing Seminar

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Numerical simulations for wetting on rough surfaces

Thursday, March 7, 2019
1:30 PM- 2:30 PM
Room 646 PGH

Abstract: Wetting on rough surface is common in nature and industry applications. Mathematically, it is a free interface problem proposed in a domain with rough boundaries. Due to the complicated boundary conditions, numerical simulation for wetting problems is difficult. In this talk, we will introduce a volume preserving threshold dynamics method for wetting on rough surfaces, which is based on minimization of the weighted surface area functional over an extended domain that includes the solid phase. The method is simple, stable and quite efficient. It is not sensitive to the inhomogeneity or roughness of the solid boundary. The method is also improved to fulfill the local contact angle condition. We also show some mathematical analysis and numerical examples for the method.