

**Homogenization and Regularity of Geometric Variational Problems in
Random Media**

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In this talk, I will present some recent studies that combine some classical variational problems with free boundary value problems, randomization, and homogenization. We will start with the investigation of regularity theory in random media. We will then apply this theory to related homogenization problems and free boundary value problems. One particular example that will be discussed is the homogenization of the minimal surface equation in a unit ball with a highly oscillatory boundary condition. Here, we will realize that the notion of the limit plays an important role and that the limit will be obtained in terms of currents from geometric measure theory.