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**Qiang Du\*** ([qdu@math.psu.edu](mailto:qdu@math.psu.edu)), Department of Mathematics, Penn State University, University Park, PA 16802. *Stochastic models for complex fluid structure interactions.*

In this talk, we present a couple of models that incorporate fluctuation effects in the study of complex fluid structure interactions within the diffuse interface framework. We discuss their mathematical properties and examine issues that may be important to numerical simulations. (Received November 01, 2010)