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Title: Coupling a Fluctuating Fluid with Suspended Structures

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Bidirectional coupling of immersed structures, such as the beads of a polymer chain, to the surrounding fluid flow has been studied extensively; however, thermal fluctuations in the fluid equations are not usually considered even though they are responsible for Brownian motion. Achieving fluctuation-dissipation balance in the coupled fluid-structure is not trivial and requires special care in both the fluid solver and the fluid-structure coupling. I will review some approaches, including a hybrid particle-continuum approach that we have developed, and discuss some new ideas.