Boundary Conditions in numerical models of Brownian coating thermal noise of gravitational-wave detector mirrors[1] SAMUEL RODRIGUEZ, California State University, Fullerton, LVC COLLABORATION — Reducing Brownian coating thermal noise is crucial for increasing the sensitivity of ground-based gravitational-wave detectors. One promising idea to decrease thermal noise is to use crystalline coatings, but modeling thermal noise from crystalline coatings is technically challenging. In this talk, I will discuss new numerical calculations that use the fluctuation-dissipation theorem to model Brownian coating thermal noise for crystalline coatings using the fluctuation-dissipation theorem. In this talk, I will present some results that explore the effect of changing the boundary conditions employed on the front, back, and sides of a cylindrical fused-silica mirror substrate with a single-layer crystalline coating.

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