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Experiments on Sphere Cylinder Geometry Dependence in the Electromagnetic Casimir Effect SHOMEEK MUKHOPADHYAY, EHSAN NORUZIFAR, JEFFREY WAGNER, ROYA ZANDI, UMAR MOHIDEEN, University of California, Riverside — We report on ongoing experimental investigations on the geometry dependence of the electromagnetic Casimir force in the sphere-cylinder configuration. A gold coated hollow glass sphere which forms one surface is attached to a Silicon AFM cantilever. The cylinder, which is constructed from tapered optical fiber is also gold coated. The resonance frequency shift of the cantilever is measured as a function of the sphere-cylinder surface separation. The sphere-cylinder electrostatic force is used for alignment of the sphere and the cylinder and also for calibrating the system. The results are compared to numerical simulations in the framework of the Proximity Force Approximation (PFA).

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