

Abstract Submitted  
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**Casimir effect between Topological Insulators: a proposal for quantum levitation** PABLO RODRIGUEZ-LOPEZ, Universidad Carlos III de Madrid, ADOLFO GRUSHIN, ALBERTO CORTIJO, CSIC — In this talk I will study the Casimir interaction between Topological Insulators (TIs). I will start with a brief description of the TIs, to explain what a TI is, and why they are interesting from a Casimir effect point of view. In particular, a three dimensional Topological Insulator is characterized by its topological magnetoelectric coupling  $\theta \neq 0$ . We will discuss the electromagnetic response of the TIs, how a magnetoelectric coupling between TE and TM modes appears in this material and its consequences. We will show how, by tuning the parameter  $\theta$  of the TI, we will be able to change the behavior of the Casimir energy between TIs from attraction to repulsion for all distances, and even the appearance of an equilibrium distance in the system. Then TIs can be potentially used to obtain “quantum levitation” and to avoid the sticking phenomena in NEMS.

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