



## **Titolo: Quantum fluctuation forces inside electronic circuits**

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Aula B, DiFC, Via Archirafi 36, ore 15:00, DiFC, Via Archirafi 36

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**Dr. Ephraim Shamoon, Department of Physics, Harvard University**

**Keywords: Casimir forces, vacuum fluctuations, circuit QED**

### Abstract:

The van der Waals and Casimir forces act between electromagnetically-polarizable objects, and are often associated with the surrounding vacuum fluctuations of the electromagnetic field.

However, forces induced on a physical system by the quantum zero-point fluctuations of its environment, should not be limited to those induced by the vacuum of the electromagnetic field. In my talk, I will discuss the quantum fluctuation forces that can exist in electronic circuit environments, e.g. between or inside circuit components. A central theme is the ability to manipulate the electromagnetic environment experienced by a system embedded in a circuit (e.g. by simply varying a resistance/inductance coupled to the system), resulting in a variety of tunable fluctuation forces, and in the possibility to characterize and measure them as a function of their environment. I will also discuss how these effects can be observed in existing circuit QED and quantum electromechanical systems.

