



istanbul matematiksel bilimler merkezi  
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# MATHEMATICAL AND THEORETICAL PHYSICS AFTERNOONS

**Friday, 12 October 2018**

**13.30-14.30: Levent Akant** Bogazici University, Istanbul

*Geometric and Gravitational Effects on the Bose-Einstein Condensation*

Abstract: We discuss Bose-Einstein condensation on a curved ultra-static space-time. We formulate a method of taking the nonrelativistic (meaning large  $c$ ) limit of matter thermodynamics in a static space-time without losing the background geometry. We use our results to analyze the finite size Bose-Einstein systems.

**14.30-15.00:** Coffee Break

**15.00-16.00: Emil Akhmedov** Moscow Institute for Physics and Technology, Moscow, Russia

*Ultraviolet phenomena in AdS self-interacting quantum field theory*

Abstract: We study the one-loop corrections to the four-point function in the Anti de Sitter space-time for a  $\phi^4$  field theory. Our calculation shows the existence of non-local counterterms which however respect the AdS isometry. Our arguments are quite general and applicable to other (non-conformal) AdS field theories. We also explain why calculations in Euclidean and Lorentzian signatures should differ even at the leading order in non globally hyperbolic manifolds.

**Place :** IMBM Seminar Room, Bogazici University South Campus