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ARNOLD SOMMERFELD
CENTER FOR THEORETICAL PHYSICS



Sommerfeld Theory Colloquium

Dr. Murad Alim

Bonn University

ASC-PhD-Colloquium:
Exploiting Background (In)dependence in
Topological String Theory

The formulation of field theories depends on an initial choice of parameters, couplings and geometry. This is termed background dependence. In this talk it will be shown how background dependence can be understood and quantified for topological string theories. The quantitative description of background dependence in these theories allows a matching between two types of theories via mirror symmetry. This symmetry relates two surprisingly different areas of mathematics and provides a handle on non-perturbative physics. Moreover, background independence severely constrains the loop expansion of the partition functions of these theories. A recursive polynomial structure relating higher loop amplitudes to lower loop ones is unveiled which makes computations highly accessible.

Wednesday, 10th February 2010, 10:30 h, Room 348 / 349, Theresienstr. 37 / III