

PHYSICS DEPARTMENT COLLOQUIUM

“Tilings, Dimers, and Quiver Gauge Theories”

BY

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This lecture will describe a recent progress in the study of the duality between string theory and gauge theory, using the dynamics of branes in string theory. This study led to the discovery of new links between "dimers", objects typically used in the study of statistical mechanical systems and in combinatorics, and between "quiver gauge theories", objects which are typically used in the study of dynamics of branes in string theory. The discovery led to the understanding of a large class of quantum field theories in 3+1 dimensions which have the special property of being scale invariant and supersymmetric. It is actually the first known class of its type, being minimally supersymmetric and in 3+1 dimensions. This recent progress gives new tools in analyzing and solving supersymmetric gauge theories and understanding a large class of string theory backgrounds. Furthermore there is an intimate connection with problems in algebraic geometry which will be touched upon during the talk.

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4:00 PM IN 102 JFB
REFRESHMENTS AT 3:30 PM IN 219 JFB