



THE UNIVERSITY OF CHICAGO

COMPUTATIONAL AND APPLIED MATHEMATICS COLLOQUIUM STUDENT SEMINAR

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Computational and Applied Mathematics

Numerical Methods for the Dirac System

TUESDAY, November 5, 2019, at 4:00 PM
Cobb 104, 5811 S. Ellis Avenue

ABSTRACT

Topological insulators are materials with insulating bulk but conducting surface states. These materials are characterized by quantities that are preserved in the presence of impurities. Such quantities are known as topological invariants and are most typically a current or conductivity along the edge of a two-dimensional material. An example is the Dirac system—a 2-by-2 continuous model with interesting topological behavior. In this talk, I will discuss numerical techniques for analyzing this system and highlight the difficulties that arise from representing infinite-dimensional operators by matrices.