## MAR08-2007-003007

Abstract for an Invited Paper for the MAR08 Meeting of the American Physical Society

## Algebraic charge liquids and the underdoped cuprates ${\tt SENTHIL\ TODADRI,\ MIT}$

We describe a possible theoretical route for the evolution with doping of an antiferromagnetic Mott insulator into a gapless d-wave superconductor. Central to this description are "algebraic charge liquids" with power law correlations of gapless, spinless, charge e fermions. Based on this understanding a specific theory of the underdoped cuprates that naturally explains a number of puzzling phenomena including the doping and temperature dependence of the superfluid density, the photoemission spectra, and Shubnikov-de Haas oscillations is proposed. Experiments to test the theory are suggested.