Mathematics Department Colloquium

Organizer(s): Kenneth Ribet

Thursday, 4:10–5:00pm, 60 Evans

Feb. 14   **Haim Brezis**, University of Paris and Rutgers University
Can you hear the degree of a map from the circle into itself?

A few years ago— following a suggestion by I. M. Gelfand—I discovered an intriguing connection between the topological degree of a map from the circle into itself and the Fourier coefficients of the map. This relation is easily justified when the map is smooth. However, the situation turns out to be much more delicate if one assumes only continuity, or even Hölder continuity. I will present recent developments and open problems. I will also discuss new estimates for the degree leading to unusual characterizations of Sobolev spaces. The initial motivation for this direction of research came from the analysis of the Ginzburg–Landau model.