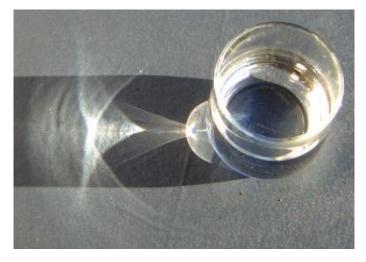
## Stanford Department of Mathematics SUMO Speaker Series

Tuesday, March 7th

5:30 - 6:20 PM, Ricker Dining Green Room (238 Santa Teresa St.) Please feel free to bring in dinner from Ricker Dining before the talk.



## Singularities of Smooth Maps

Daniel Álvarez-Gavela

## Abstract

Suppose we take a photograph of a tree. This photograph acts as a function F which maps from the surface of the tree to the 2D plane. At a given point p on the surface of the tree, if the derivative matrix DF(p) is invertible, then the photograph accurately reflects the tree near that point p. This fact is known as the inverse function theorem.

However, if DF(p) is not invertible, then the photograph wildly distorts the tree, resulting in a confusing picture. The study of how confusing a photograph can be, as well as the study of unconfusing a confused photograph, is known as singularity theory. We will take an excursion through singularity theory by means of drawing pictures and taking photographs.

http://sumo.stanford.edu/speakers.html