



# UNIVERSITY OF CALIFORNIA RIVERSIDE

DEPARTMENT OF MATHEMATICS

## COLLOQUIUM

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**Dr. Thomas Laurent**  
(Postdoctoral Scholar, UCLA)

"Blow-up in Multidimensional Aggregation Equations"

**Abstract:**

The aggregation equation is a continuum model for interacting particle systems with attractive/repulsive pairwise interaction potential  $K$ . It arises in a number of models for biological aggregation, materials science and granular media. The main phenomenon of interests is that, even with smooth initial data, the solutions can concentrate mass in finite time (i.e. a delta Dirac appears in the solution in finite time). Using techniques from fluid dynamics and from optimal transport, we prove rigorous results which explain how and under what circumstances these Dirac delta functions appear.

**Monday, March 1<sup>st</sup>, 2010**

**Surge 284**

**4:10-5:00pm**

*Tea Time at 3:40pm*