

“The earth has the shape of a torus obtained by factoring the plane by a square lattice.”

- V.I. Arnold

The Trivial Notions Seminar  
Proudly Announces  
Geometry of Diffeomorphism Groups

A talk by  
Peter Smillie

**Abstract**

In 1966, on the occasion of the 200th anniversary of Euler’s description of the equations of motion of a rigid body, Arnold published a paper in which he showed first how to reinterpret Euler’s equations as arising from geodesic flow on the group  $SO(3)$ , and second how by replacing  $SO(3)$  with  $SDiff(D)$ , the group of volume preserving diffeomorphisms of a domain  $D$ , one recovers the classical theory of incompressible fluid flow. We’ll translate some questions about fluid flow into infinite dimensional Lie geometry, and then answer them.

Thursday February 28<sup>th</sup>, at 1:00 pm  
Science Center 310