

Mathematics Colloquium

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**Pseudo-Anosov Flows  
in 3-Manifolds,  
Existence and Rigidity**

*Abstract: Pseudo-Anosov flows are extremely common in three manifolds and they are very useful. We will explain general properties of such flows and relations with topology and geometry of the manifold. We will discuss the existence of such flows, in particular those flows transverse to foliations. This is a very common situation. Finally we will discuss how many pseudo-Anosov flows there are in a manifold up to topological conjugacy. We analyse this question in the context of flows transverse to a given foliation  $F$ . We prove that if  $F$  is  $\mathbb{R}$ -covered (leaf space in the universal cover is the real numbers) then there are at most two pseudo-Anosov flows transverse to  $F$ . The existence and uniqueness analysis uses the universal circle for foliations.*

**Wednesday, March 11**

**4:00-5:00 pm  
204 Smith Hall**