



McMaster University



University of Toronto



University of Waterloo

## THE FIELDS INSTITUTE FOR RESEARCH IN MATHEMATICAL SCIENCES

### GEOMETRIC MECHANICS SEMINARS

#### SPEAKER:

**ZHONG GE**  
The Fields Institute

#### On the Topic:

#### A Geometric Description of $SL(2)$ Manifolds

In this talk we will give an introduction to a differential-geometric description of  $SL(2)$ -manifolds, one of the eight classes of 3-manifolds studied by Thurston, with motivation from mechanics and control theory.

The geometric data we will use is that of a sub-Riemannian metric, which has appeared in control theory and Vakanomic mechanics. We will show that sub-Riemannian geometry is the right geometry for  $SL(2)$ -manifolds. This description is the best in the sense that it is the only one which is "structurally stable."

We will start from basic concepts and definitions. If time allows, we will discuss some applications to Lorentz geometry, especially to Lorentz space forms.

**Tuesday, March 30, 1993**

**3:30 pm, room 3018**

**at**

**The Fields Institute**

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