



PIMS / AMI Seminar

Wednesday, April 3, 2013
3:00 p.m.
CAB 365

“Equivalent theories of liquid crystals”

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Abstract

There are two competing descriptions of nematic liquid crystal dynamics: the Ericksen-Leslie director theory and the Eringen micropolar approach. Up to this day, these two descriptions have remained distinct in spite of several attempts to show that the micropolar theory comprises the director theory. In this talk I will show that this is the case by using Lie group symmetry reduction techniques. More precisely, I will show how these systems can be seen as reduced Euler-Lagrange equations on semidirect product Lie algebras and how this geometric approach can be used to prove that the micropolar theory of liquid crystal comprises the well-known Ericksen-Leslie theory.

Refreshments will be served in CAB 649 at 2:30 p.m.