The lectures by Robert Jerrard (University of Toronto) will be on "Dynamics of vortices and other topological defects in nonlinear field theories"

Abstract:
The main theme of this series of lectures will be the use of measure-theoretic and variational arguments to study stability properties of certain Hamiltonian geometric evolution problems. In doing so we will focus on a couple of canonical examples. The first is the equation for timelike minimal submanifolds of Minkowski space (arising for example in some models in cosmology), the stability of which is manifested in the fact that it arises as a singular limit of certain semilinear wave equations. The second main example is the equation for the evolution of curves via their binormal curvature (arising as an approximation to dynamics of vortex filaments in certain ideal fluids) and related Schrödinger maps.