Dispersive Geometric Flows

In these lectures we will present recent developments on dispersive geometric PDE's. We will focus our attention on the Schrödinger map problem and, to a lesser extent, on wave maps. We will begin by giving physical derivation of the equations and discuss important questions to be addressed. Next, we will prove existence and uniqueness of solutions and discuss the possibility of proving that smooth data develop singularities infinite time. Finally, we will present results on singular limits of the these geometric flows.