

Cauchy-Riemann geometry of Legendrian curves in the 3-dimensional Sphere.

Emilio Musso

Politecnico di Torino

emilio.musso@polito.it

Let S^3 be the unit 3-sphere with its standard Cauchy–Riemann (CR) structure. We consider the CR geometry of Legendrian curves in S^3 , thought of as a 3-dimensional homogeneous CR manifold. We introduce the two main local invariants : a line element (the cr-infinitesimal strain) and the cr-bending. Integrating the invariant line element we get the simplest cr-invariant variational problem for Legendrian curves in S^3 . We discuss Liouville integrability and the existence of closed critical curves.