Cole Hugelmeyer

Proof That a Circular Hopf Link Is a Stationary Point for Mobius Energy

Mobius energy has been an object of interest for some time now for a few reasons. Firstly, the knot shape that globally minimizes Mobius energy on a knot type is considered to be the ideal shape of a knot. Secondly, the only knot type for which we know the global minimizer is the unknot. In this project, we study a circular stationary point for Mobius Energy on the Hopf link topology. This is a intriguing first step in proving local or global minimization for a knot topology other than the unknot. In this proof, we look at Mobius energy from a inextensible standpoint, and use infinite dimensional Lagrange multipliers to prove that a circular stationary point exists.