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## **Three Dimensional Manifolds All of Whose Geodesics Are Closed**

We will discuss some results on the Morse Theory of the energy function on the free loop space of  $S^3$  for metrics all of whose geodesics are closed. We will show what implications these results have for the Berger conjecture in dimension three. If time permits, we will sketch the proof of the main result, which states that the energy function is perfect with respect to the  $S^1$ -equivariant cohomology with rational coefficients.