

ABSTRACT. We give the first explicit lower bound for the length of a geodesic in a closed orientable hyperbolic 3-manifold  $M$  of lowest volume. We also give an upper bound for the tube radius of any shortest geodesic in  $M$ . We explain how these results might be the first steps towards a rigorous computer assisted effort to determine the least volume closed orientable hyperbolic 3-manifold(s).