

Symmetric periodic Reeb orbits on the sphere and contact homology of Lens spaces

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A long standing conjecture in Hamiltonian Dynamics states that every contact form on the standard contact sphere S^{2n+1} has at least $n + 1$ simple periodic Reeb orbits. In this talk we will consider a refinement of this problem when the contact form has a suitable symmetry and ask if there are at least $n + 1$ simple symmetric periodic orbits. We show that there is at least one symmetric periodic orbit for any contact form and there are at least two symmetric periodic orbits whenever the contact form is dynamically convex. A relevant ingredient in the proof of this later result is a contact homology computation for arbitrary Lens spaces. This is joint work with Hui Liu and Leonardo Macarini.