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Joanna Nelson* (nelson@math.wisc.edu). *Cylindrical contact homology for links of simple singularities*. Preliminary report.

Simple singularities are given as the isolated double point quotient singularity of \mathbb{C}^2/G , where G is a finite subgroup of SU_2 . The variety \mathbb{C}^2/G may be realized as a hypersurface $f_G^{-1}(0) \subset \mathbb{C}^3$. An associated object of interest is the link L of a simple singularity, given by $S^5 \cap f_G^{-1}(0)$. One can demonstrate that S^3/G and the link L equipped with their standard contact structures are contactomorphic. I'll briefly recall the notion of a simple singularity and then sketch a hopeful means of computing the cylindrical contact homology of S^3/G . This is done by constructing Hamiltonian vector fields on S^2 , invariant under the action of G . Since the Hopf fibration is an example of a prequantization space one is able to perturb the contact form on S^3 by lifting the invariant Hamiltonian, and understand the perturbed Reeb dynamics in terms of the original and the horizontal lift of the Hamiltonian vector field on S^2 . (Received June 22, 2011)