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**JAMES MRACEK**, University of Toronto

*Betti Numbers of Symplectic Quotients of Based Loop Groups*

We have computed the Betti numbers of symplectic quotients of based loop groups using equivariant Morse theory. Based loop groups come equipped with a Hamiltonian group action whose associated moment map can be used as a Morse function. We use the norm squared of the moment map in order to compute Betti numbers of the symplectic reductions at varying regular levels. The Betti numbers of the quotients exhibit changes when the reduction parameter crosses the singular locus of a component of the moment map. Additionally, the Betti numbers always stabilize at a finite stage. This talk will demonstrate these results through an examination of  $\Omega SU(2)$ . This project is joint work with Jonathan Fisher.