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**Megumi Harada\*** ([megumi@math.toronto.edu](mailto:megumi@math.toronto.edu)), Department of Mathematics, 40 St. George St., University of Toronto, Toronto, Ontario M5S2E4, Canada. *The topology of symplectic and hyperkahler quotients.*

Symplectic and hyperkähler geometry lie at the crossroads of many exciting areas of research due to their relations to geometric representation theory, combinatorics, and certain areas of physics such as string theory and mirror symmetry. As often happens in mathematics, the presence of symmetry in these geometric structures – in this context, a *Hamiltonian  $G$ -action* for  $G$  a compact Lie group – turns out to be useful in the computation of topological invariants, such as the Betti numbers or the cohomology ring, of symplectic and hyperkähler manifolds. I will give a bird’s-eye, motivating overview of the subject and then give a survey of my recent results on the topic. (Received September 21, 2005)