

Turkish Journal of Physics

Turkish Journal

of

Physics

Equivariant Localization for SUSY Quantum Mechanics

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Abstract: We apply equivariant localization to supersymmetric quantum mechanics and show that the partition function localizes on the instantons of the theory. Our construction of equivariant cohomology for SUSY quantum mechanics is different than the ones that already exist in the literature. A hidden bosonic symmetry is made explicit and the supersymmetry is extended. New bosonic symmetry is the square of the new fermionic symmetry. The D term is now the parameter of the bosonic symmetry. This construction provides us with an equivariant complex together with a Cartan differential and makes the use of localization principle possible.

Key Words: Superymmetric quantum mechanics; equivariant cohomology.

Turk. J. Phys., **30**, (2006), 391-400.

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