Moment maps and closed Fedosov's star products.

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I will present a moment map μ on the space of symplectic connections on a given closed symplectic manifold [1]. Given any symplectic connection ∇, one can build a Fedosov's star product $*_\nabla$, [2]. I will show that the moment map μ evaluated at the symplectic connection ∇ gives the first non trivial term of the trace density for the star product $*_\nabla$.

Considering closed Kähler manifolds and working only with Kähler potentials, I will explain that the problem of finding the zeroes of μ is an elliptic partial differential equation. On complex tori and complex projective spaces, I will show that part of the zero set of μ has the structure of a smooth finite dimensional manifold [4]. I will also discuss possible obstructions, analogous to Futaki invariants [3], to the existence of zeroes of μ on Kähler potentials.

References

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