Circle valued momentum maps

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Abstract:
In this talk I will present a proof of a "folklore" result often quoted in the literature: A canonical circle action on a compact symplectic manifold either admits a momentum map or, if not, there exists a circle invariant symplectic form that admits a circle valued momentum map. In addition, this circle valued momentum map is Morse-Bott-Novikov and the fixed point set of the action has even index. I will comment on the equivariant Darboux theorem. Time permitting I will present a theorem that permits to detect Hamiltonian flows by fixed points. All of this work is joint with Alvaro Pelayo.