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Eva Miranda* (eva.miranda@upc.edu), Laboratory of Geometry and Dynamical Systems,
Department of Mathematics, EPSEB-UPC, 08028 Barcelona, Spain. *Desingularizing singular
symplectic structures.*

In this talk I will present a desingularization procedure (joint work with Victor Guillemin and Jonathan Weitsman) for singular symplectic structures which are symplectic away from a smooth hypersurface and meet some transversality requirements.

These singular symplectic structures appear modelling some problems in celestial mechanics (like the 3-body problem or the elliptic restricted 3-body problem) where the singularities are associated to the line at infinity or collision set.

The desingularization technique (deblogging) associates a family of symplectic structures to singular symplectic structures with even exponent (the so-called b^{2k} -symplectic structures) and a family of folded symplectic structures for odd exponent (b^{2k} -symplectic structures) and has good convergence properties.

Time permitting, I will explain some applications of this desingularization technique to these motivating problems in Celestial mechanics (including periodic orbits and KAM theory). (Received February 08, 2018)