

SYMPLECTIC GROUPOIDS FOR POISSON INTEGRATORS

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Geometric technics are developed to build Hamiltonian Poisson integrators for generic Hamiltonian and Poisson structure. Such technics allow to compute precise estimates on the error and are theoretical tools to understand better the stability of such integrators on long run simulations. The main geometric object is the local symplectic groupoid of the considered Poisson structure. Those technics are illustrated on rigid body dynamics and Lotka-Volterra equations. The poster is based on the following preprints : Symplectic Groupoids for Poisson Integrators, O. C., arXiv:2303.15883 Numerical Methods in Poisson Geometry and their Application to Mechanics , O. C., C. Laurent-Gengoux, V. Salnikov, arXiv:2205.04838

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