國立中山大學應用數學系
學術演講

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講　題：漢彌頓系統自動保持能量的李群 SO(p,q) 計算方法
　　Automatically energy preserving scheme for Hamiltonian system by using Lie-group SO(p,q) in a pseudo-Riemann space

時　間：2015/1/9（星期五）16：10 ~ 17：00

地　點：理學院四樓理 SC 4011 室

茶　會：15:30 於理 SC 4010 室 (系辦公室)

摘要

Besides the quadratic type Hamiltonian system, the symplectic integrator cannot automatically preserve energy. There have been projection and symmetric projection techniques which coupled with symplectic schemes force the numerical solution to lie on a proper manifold of energy conservation, which, in general are very time consuming. We transform the invariant of Hamiltonian function into a quadratic form in a pseudo-Riemann space with signature (p,q). Then we develop a novel invariant preserving scheme (IPS) for Hamiltonian system by recasting it to be a Lie-type ordinary differential equations system with a local Lie-algebra so(p,q). The resulting Lie-group SO(p,q) method can automatically preserve the Hamiltonian function (energy) to be a constant value. Several Hamiltonian problems are used as testing examples to calibrate the high performance of IPS.

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敬 請 公 告！ 歡 迎 參 加！

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