

Seminari Informal de Matemàtiques de Barcelona

Speaker: Ariadna Farrés Basiana.
Universitat: Institut de Matemàtiques de Bourgogne.

Data: dilluns 22 d'abril de 2013.
Horari: 12:15, *coffee break*; 12:30, xerrada.
Lloc: Aula IMUB (al terrat), Facultat de Matemàtiques de la UB.

Títol: Symplectic Methods for Long-Term Integration of the Solar System.

Resum: In this talk we will show how to develop numerical integration schemes for high accuracy long-term integration of the Solar

System.

To model the Solar System dynamics we use the N-Body problem as a 'toy model'. We will show that for the planetary case, using an appropriate set of coordinates, the equations of motion are written as an integrable part, H_A , that corresponds to the Keplerian motion of each planet around the Sun and a small perturbation, H_B , given by the interaction of the planets between each other. The integration of the system is done using a class of splitting symplectic methods that take into account the structure of this Hamiltonian system ($H = H_A + H_B$).

We will review different classes of splitting symplectic schemes that we find in the literature and some of the new families of methods that we have developed. We will discuss the most interesting properties of each scheme and compare their performance. Finally we will discuss which are the best options.

Qui som? El SIMBa és un seminari jove organitzat per estudiants de doctorat de matemàtiques. Està dirigit a estudiants de doctorat, de màster i, fins i tot, dels darrers cursos de grau. El nostre objectiu és donar a conèixer la recerca que estem fent, així com adquirir coneixements d'altres àrees de les matemàtiques diferents de la pròpia.

Més informació a www.imub.ub.es/simba.