Speaker: Mari Paz Calvo, Universidad de Valladolid, Spain

Title: Taylor-Fourier integrators

Abstract: In this talk we study Taylor-Fourier integrators for the numerical solution of differential systems

$$\frac{d}{dt}x = Ax + g(x), \tag{1}$$

where g is a smooth map and A is a real matrix whose eigenvalues are integer multiples of an imaginary number $i\omega$. The numerical solution of (1) is constructed by computing a sequence of approximations to the solution of the differential system

$$\frac{d}{dt}y = f(\omega t, y),$$

obtained after making in (1) the change of variables $x(t) = e^{tA}y(t)$. Implementation details and numerical results to show the performance of the methods will be given.

Joint work with Joseba Makazaga and Ander Murua (Universidad del País Vasco)