Antonio E Teruel   Universitat de les Illes Balears, Spain

ON THE DISPLACEMENT MAP AROUND HETEROCLINIC SADDLE CON-
NECTIONS IN PIECEWISE LINEAR SYSTEMS

Using one-parameter families of piecewise linear differential systems that exhibit period annuli bounded by heteroclinic connections between two linear saddles, this talk examines the expression of the displacement map near the connection under generic perturbations within the piecewise linear family. In particular, we provide the expansion of the first Melnikov function in terms of the principal monomials, determine the number of monomials that are independent, and establish lower bounds for the number of limit cycles bifurcating from the connection. This analysis allows us to describe the behaviour of the principal monomials as the parameter approaches values for which the saddles become strongly resonant (the hyperbolicity ratio equals one).