1147-35-227   **Annalaura Stingo*** (`astingo@math.ucdavis.edu`). *Global existence of small solutions for a quadratic quasi-linear wave-Klein-Gordon system in 2D.*

The aim of this talk is to investigate the global existence of solutions to a coupled wave-Klein-Gordon system in two space dimension when initial data are small smooth and mildly decaying at infinity. Some physical models strictly related to general relativity have shown the importance of studying such systems but very few results are known at present in low space dimension. We discuss here a two-dimensional model system in which the non-linearity writes in terms of "null forms", and show that sufficiently small solutions are globally defined in time. Our goal is to prove some energy estimates on the solution when a certain number of Klainerman vector fields is acting on it and some optimal uniform estimates. The former ones are obtained using systematically quasi-linear normal forms, in their para-differential version; the latter ones are recovered by deducing a new coupled system of a transport equation and an ordinary differential equation from the starting PDE system by means of a semi-classical micro-local analysis of the problem. (Received January 11, 2019)