1118-35-168 **Irena Lasiecka*** (lasiecka@memphis.edu), University of Memphis, Memphis, Tennesee 38152.

Mathematical theory of PDE-dynamics arising in fluid/flow-structure interactions.

Fluid-structure interactions and flow-structure interactions are ubiquitous in nature. Problems such as attenuation of turbulence or flutter in an oscillating structure are prime examples of relevant applications. Mathematically, the models are represented by nonlinear Partial Differential Equations (Navier Stokes and nonlinear elasticity) defined in contiguous domains and displaying strong boundary-type coupling at the interface between the two media. Moreover, in most models, the dynamical character of the two PDEs evolving on their corresponding domains is different and the overall system displays a parabolic/hyperbolic coupling, separated by the interface. This provides for a rich mathematical structure opening the door to several unresolved problems in the area of nonlinear PDE's, dynamical systems and related harmonic analysis and geometry. This talk aims at providing a brief overview of recent developments in the area along with a presentation of the most recent advances addressing the issues of well-posedness and long time behavior of the corresponding evolutionary systems. (Received January 30, 2016)