



UNIVERSITÀ DI PARMA

DIPARTIMENTO DI SCIENZE MATEMATICHE, FISICHE E INFORMATICHE

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Seminario di Fisica Matematica

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***Reaction-diffusion systems derived from kinetic models
for gas mixtures applied to autoimmune diseases***

Lunedì 17 ottobre 2022, ore 10:30

Aula F, Plesso di Matematica/Informatica

Tutti gli interessati sono invitati a partecipare

Organizzatori: prof.ssa Marzia Bisi e prof. Giorgio Martalò

Abstract: The behavior of cells involved in autoimmune diseases, which are self-antigen presenting cells, self-reactive T cells and immunosuppressive cells, have been described by means of systems of integro-differential equations. Also, a constant input of self-antigen presenting cells is taken into account. Our aim is to extend this model and, at the same time, to adapt it to the scenario of Multiple Sclerosis. Firstly, we consider the motion of T-cells due to chemotaxis stimulated by cytokines and we derive a system of equations presenting also diffusive terms. Secondly, we consider the degradation of myelin performed by T-cells, resulting in the appearance of demyelinated plaques. We finally inquire about the formation of such lesions considering a Turing instability analysis of the problem.