UNIVERSIDADE DE ÉVORA
ESCOLA DE CIÊNCIAS E TECNOLOGIA
DEPARTAMENTO DE MATEMÁTICA

Centro de Investigação em Matemática e Aplicações

Seminário/Seminar

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Beyond Peano's theorem: discontinuous ODEs systems

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Abstract: We will discuss a possibility of extending the classical existence theorem of solutions for continuous ODE systems for arbitrary initial conditions, to the discontinuous case. This job demands to clarify at least two main issues: first, to specify how severe the discontinuity might be; secondly, how to define, in a coherent way with the continuous case, a generalized concept of solution. Both should be determined in such a way that a similar existence theorem to Peano's can be proved. The technique of the proof is variational, and will be simply sketched. Through several simple examples, we will try to see the role of discontinuities. The tone will not be specialized (except for basic knowledge about ODEs) so as to make the discussion accessible to a broad audience.

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