



ΓΕΝΙΚΟ ΣΕΜΙΝΑΡΙΟ ΤΜΗΜΑΤΟΣ ΦΥΣΙΚΗΣ

***SPECIAL  
PHYSICS COLLOQUIUM***

Thursday, 27 May 2010  
17:00-18:00

3<sup>rd</sup> Floor Seminar Room

***“Problems of Hydrodynamics”***

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Abstract

I shall give an overview of the main problems of hydrodynamics, starting with the history of the formulation of the laws of motion. In the interior of a fluid two main classes of phenomena occur: the phenomena of sound, the linear theory of which is acoustics, and the phenomena of vortex motion. The sound phenomena depend on the compressibility of a fluid while the vortex phenomena occur even in a regime where a fluid may be considered to be incompressible. The formation of and evolution of shocks belongs to the class of sound phenomena but lies in the non-linear regime, beyond the range covered by linear acoustics. I shall describe my results in this subfield and state the problems which are still open. The phenomena of vortex motion include the chaotic form called turbulence, the understanding of which is one of the great challenges of science. I shall formulate what I think are the simplest problems in this direction.