

## **SEMINAIRE ROBERVAL**

**Jeudi 12 novembre 2015, 10h30 – Amphi Gauss**

**Applications of Non-Linear Finite Elements and Discrete Methods**

**Prof. Jose L. PEREZ APARICIO**

**Polytechnic University of Valencia - Spain / Aeronautical Engineering Structures**

### ABSTRACT :

The talk pretends to briefly present an overview of the work published by Jose L Perez (Polytechnic University of Valencia) and associates in the last decade. This work is developed with numerical methods, mostly Finite Element and Discrete Element Methods (DEM). Results on several fields, from structural and seismic designs to multiphysics are presented.

Most of the talk is directed to final results, including some optimisations, in particular of the shape of bucket elevators and of pulsed thermoelectrics. Interesting effects present in these materials are described, such as loop non-linearities or the effect of the mechanical and magnetic fields.

The results of DEM include the behaviour of structural arches and sedimentation tests.

As an example of the theoretical formulations, one related to conserving algorithms for contact mechanics is discussed.



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