**Scripting in Abaqus, Python and Visual Basic.**

**Applications in Research and Teaching of steel structures**

Rolando Chacón

*The potential of the numerical methods in countless fields of the engineering world is nowadays recognized by the whole scientific and engineering community with practically no exceptions. The numerical simulations of the most complex coupled phenomena are increasingly feasible and provide extremely realistic phenomenological insights as well as accurate predictions of those behaviors. This increasing trend is relentless and as well as other fields associated with computing, will face a considerable boost in the years to come.*

*Scripting is a necessary tool for developing an efficient exploitation of the increasing computing capacity that is available in personal computers. Small pieces of code allow users to perform systematic computations and repetitive tasks. In the particular field of steel structures, the time associated to these computations (usually complex coupled nonlinear phenomena) has decreased in recent years to the point that massive scripting with a vast amount of simulations takes as long as one single simulation performed ten years ago.*

*This seminar-workshop depicts a series of examples related to scripting in Abaqus, Python and Visual Basic with a focus in research and teaching of steel structures. Different types of analysis (Eigenvalue, linear, nonlinear) may be massively scripted, treated and displayed with user-friendly Excel sheets. Results may be grabbed from numerical codes in minutes and displayed easily in routinely used tools such as Excel. The production time is considerably reduced and consequently, researchers, teachers and students may devote the saved time to the understanding of the phenomenon as well as to the potential optimization of the process.*

***Rolando Chacón***

*Ph.D. Associate Professor at the Construction Engineering Department (DEC) of the Technical Univsesity of Catalonia (Spain). Member of ECCS TC8 and TWG 8.3 (Plate Buckling).* ***Main research fields:*** *Instability and Ductility of Steel Structures with particular focus in the development of realistic models of phenomena associated with structural steel design.*