Scientific seminar
ENGINEERING OF COMPOSITE POLYMER PRODUCTS
GUEST LECTURE PROGRAM
March 12, 2018, 14.00-18.00, Hall CB207
Manufacturing Engineering Department, Composites Products Laboratory
Faculty of Engineering and Management of Technological Systems, University POLITEHNICA of Bucharest

Prof. Giuseppe LAMANNA
Prof. Alessandro de LUCA
Department of Engineering
University of Campania "Luigi Vanvitelli"
Aversa, Italy

1. *Modelling of the composite material properties in commercial finite element (FE) software:*

- Laminae modelling by means of Shell Finite Elements in Abaqus software;
- Laminae modelling by means of Continuum Shell Finite Elements in Abaqus software;
- Definition of lamina material properties in Abaqus software.

2. *Simulation of Low Velocity Impact (LVI) on composite material laminates, according to the ASTM D7136 requirement and modeling of inter-laminar and intra-laminar damages involving composite laminates under LVI in commercial FE software:*

- Illustration of the ASTM D7136 requirement;
- Development of the LVI FE model by means of a FE Explicit formulation;
- Definition of the boundary conditions;
- Intra-laminar damages modelling by means of Hashin Criteria;
- Inter-laminar damages modelling by means of cohesive finite elements;
- Post-processing of the results.

3. *Assessment by means of quasi-static finite element analysis of the residual strength of Low Velocity Impacted composite laminates by means of the Compression After Impact test (ASTM D7137):*

- Illustration of the ASTM D7137 requirement;
- Definition of a quasi-static FE analysis;
- Simulation of the LVI and the CAI tests in an only analysis;
- Changing of the boundary conditions from the LVI simulation to the CAI one;
- Post-processing of the results.

Organize and Reference Professor:
Constantin OPRAN
Manufacturing Engineering Department
Faculty of Engineering and Management of Technological Systems
University POLITEHNICA of Bucharest

Tel.Fax: (004) 0214029930
Mob. (004) 0744500417
e-mail : constantin.opran@ltpc.pub.ro