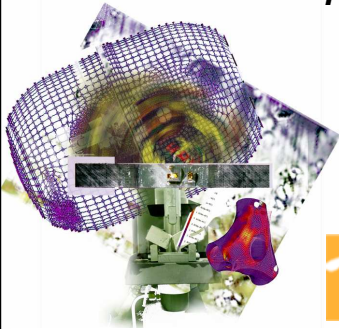


Continuum damage models for composite materials

From material to structural design



Pere Maimí

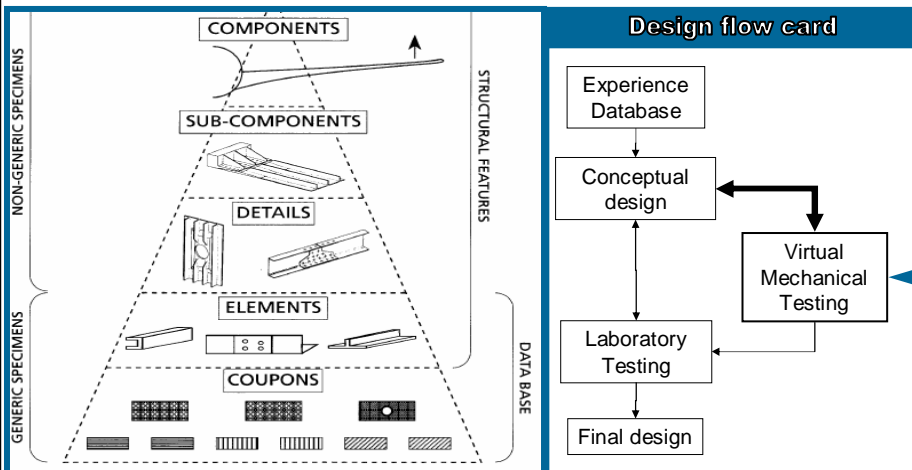
University of Girona



Analysys and Advanced Materials for Structural Design
Anàlisis i Materials Avançats pel Disseny Estructural

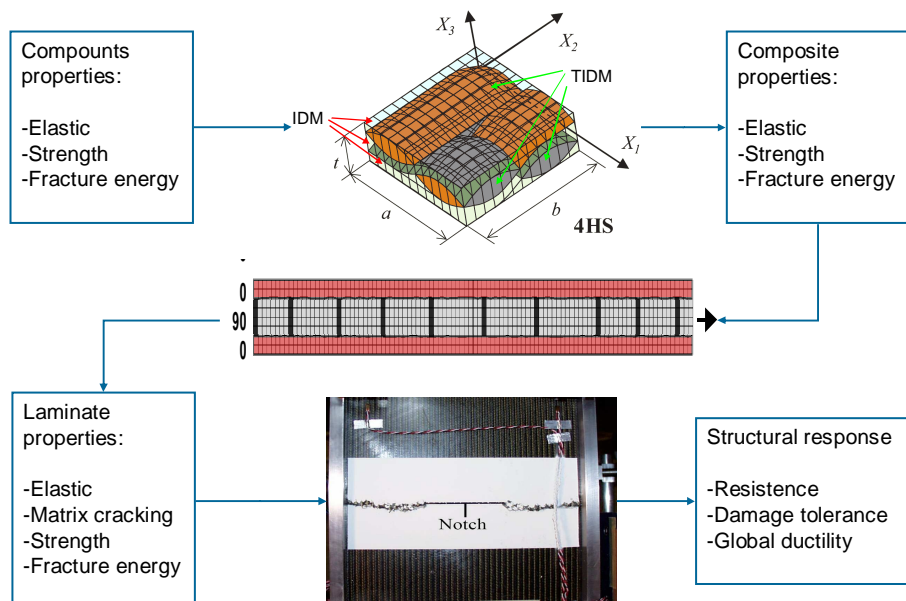


INDUSTRY STRATEGY : BUILDING BLOCK APPROACH

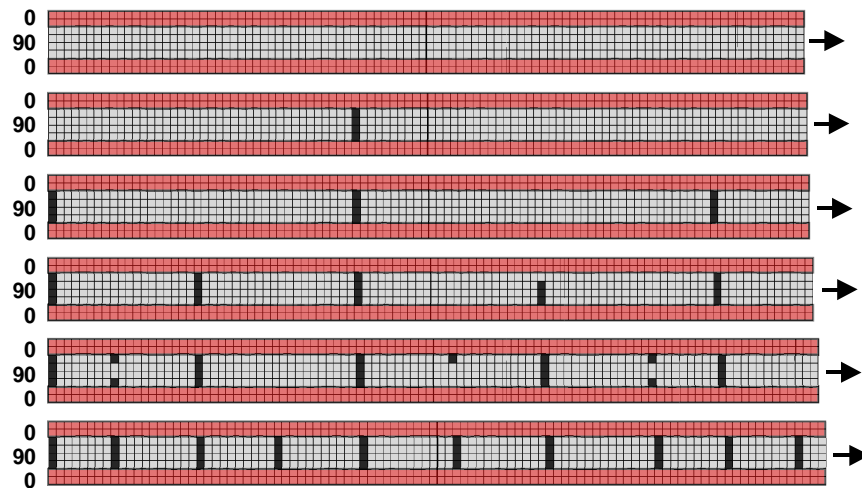


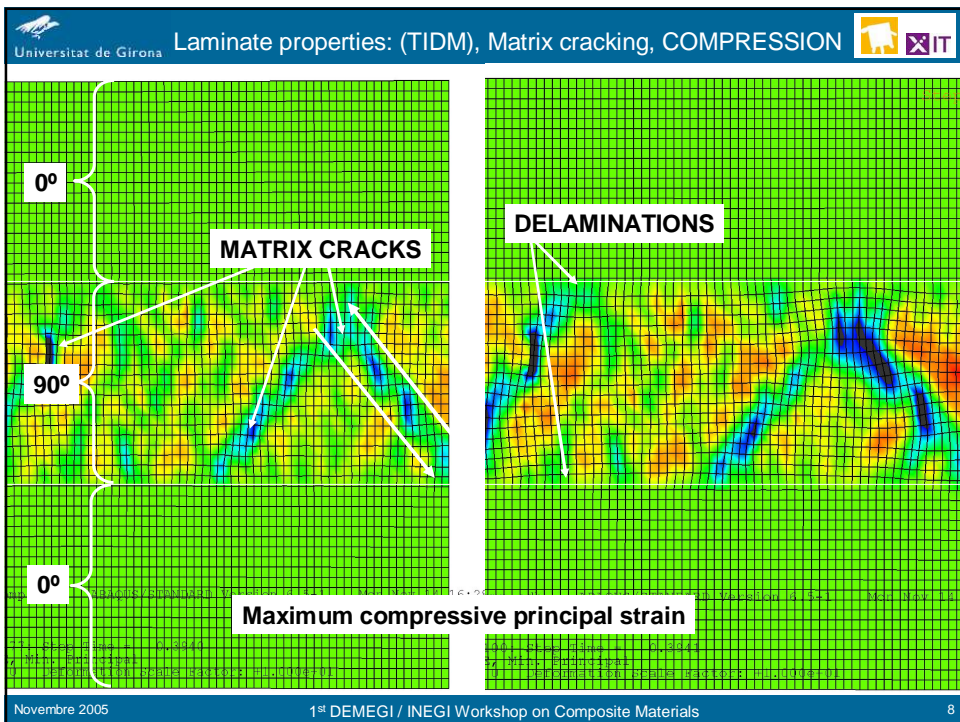
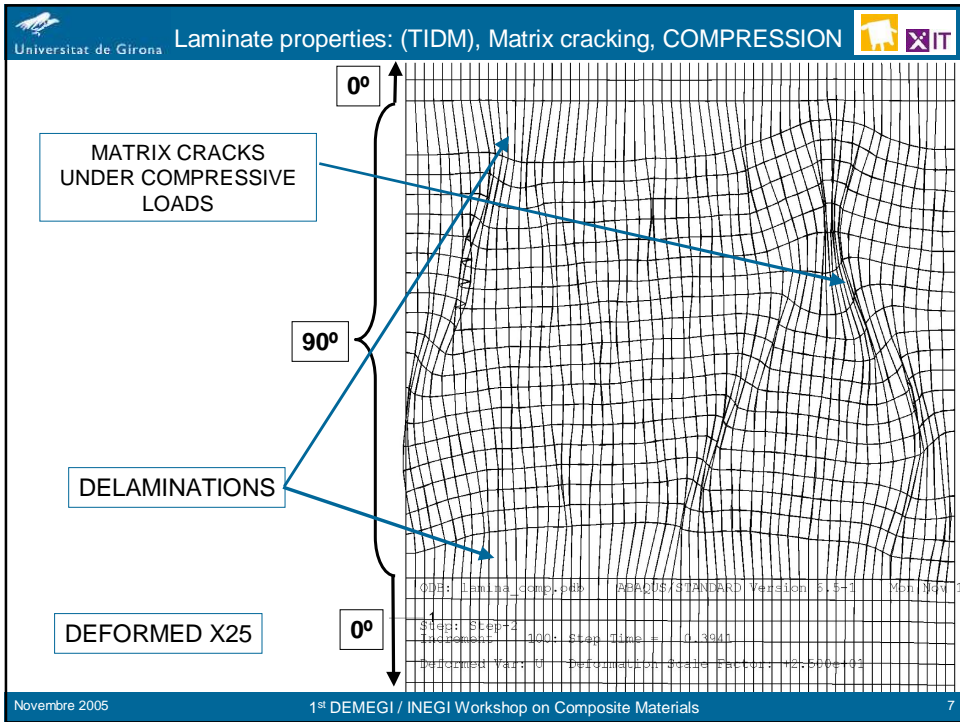
NUMERICAL TOOLS NEED FURTHER IMPROVEMENTS TO REDUCE COST OF LABOTARY TESTING IN MATERIAL AND STRUCTURAL DESIGN

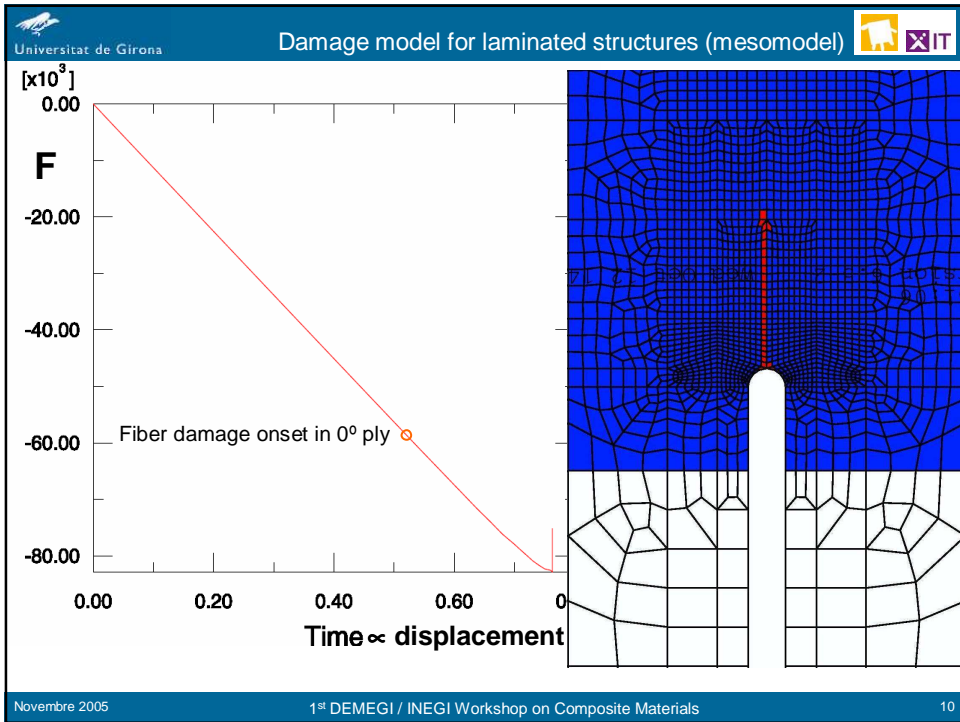
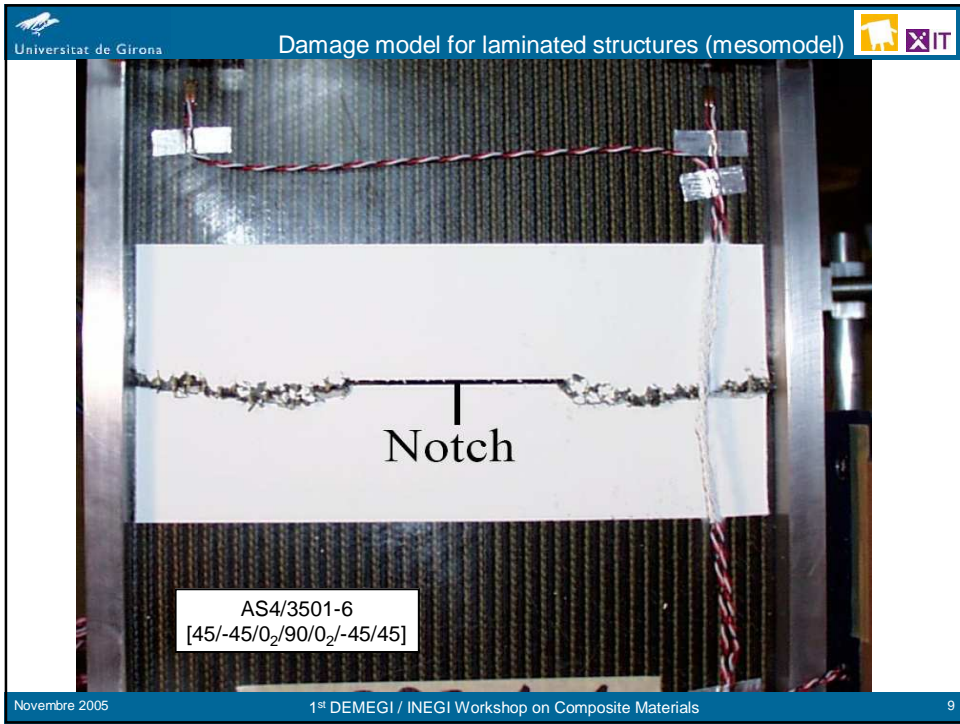
- Models can be implemented in a commercial finite element codes, allowing to solve structures with complex geometries.
- Thermodynamics of irreversible processes offers a rigorous framework.
- Capability of treat couplet problems. Damage, plasticity, thermal dilatation ...
- Models are able to detect the onset (stress criteria) and the evolution (Energy dissipation) of internal variables.



- Damage model for isotropic materials (IDM)
 - Element SOLID 3D ABAQUS
- Damage model for transversely isotropic materials (TIDM)
 - Element SOLID 3D ABAQUS
- Damage model for composite laminates (mesomodels)
 - Element thin shell ABAQUS









<http://amade.udg.es>