

MODE I FRACTURE OF TROPICAL SPECIES USING THE GRID METHOD IN CONSTANT ENVIRONMENTS: EXPERIMENTAL RESULTS

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This poster is sponsored by French National Research Council through the ANR JCJC Project CLIMBOIS N° 13-JS09-0003-01 and Labelled by ViaMeca

2st Conference "Innovative production technologies
and increased wood products recycling and reuse
Brno, Czech Republic, 29th – 30th September 2016

□ **CONTEXT and CHALLENGES**

- Importance of Gabonese forest
- Knowledge of tropical species
- Use of wood and timbers structures by locals

□ **THE PROBLEMATIC**

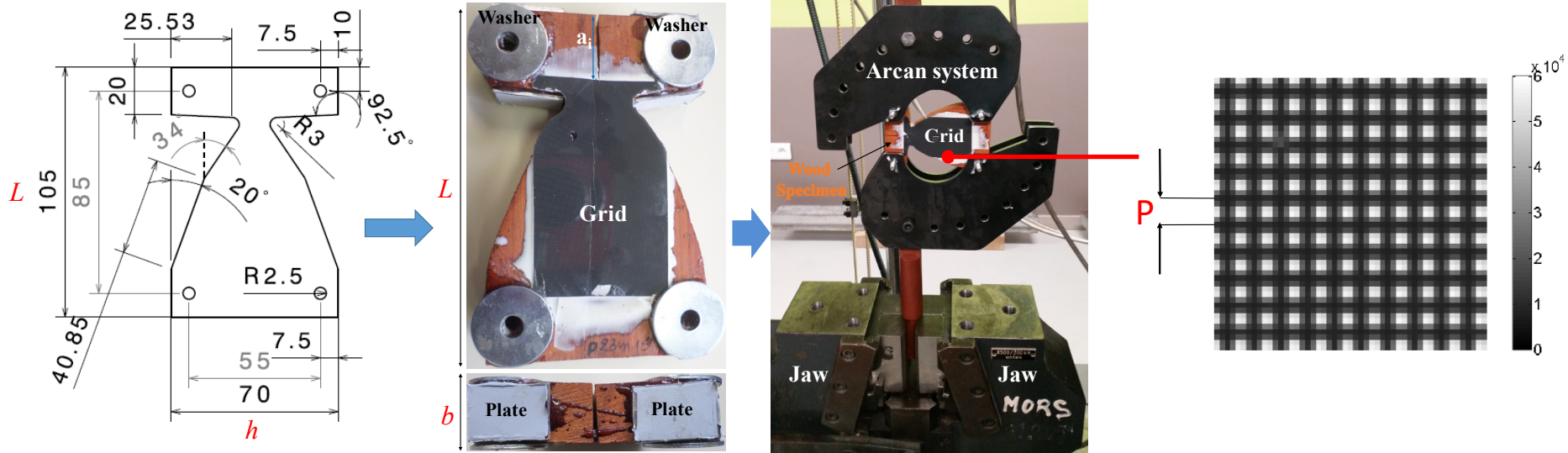
- Mechanical Behavior of *Pterocarpus Soyauxii* (Padouk)
- Impact of climatic loadings

□ **OBJECTIVE**

- Adaptation of grid method to fracture in tropical wood
- Characterization of cracking in opening and mixed modes
- Knowledge and determination of fracture parameters
- determining the mechanical characteristics of tropical wood

MATERIALS AND METHODS

MMCG SPECIMEN IN OPENING MODE



CRITICAL ENERGY RELEASE RATE G_c

$$G_c = \left(\frac{dC}{da} \right)_d \cdot \frac{F_C^2}{2 \cdot b}$$

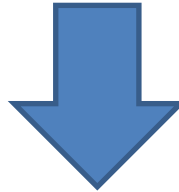
Initial crack Thickness

Compliance $dC = \frac{dU}{dF}$

Crack opening Critical load

RESULTS

- ❑ FORCE DISPLACEMENT CURVES
- ❑ STRAIN MAPS AND DISPLACEMENT MAPS
- ❑ CRITICAL ENERGY RELEASE RATE
- ❑ CONCLUSIONS AND PERSPECTIVES



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