**SS05: Reliability & optimization in structural mechanics** (Prof. Abdelkhalak EL HEMI, LMN, INSA Rouen Normandie, France & Prof. Bouchaïb RADI, FST-SETTAT, Morocco)

Optimization is generally a reduction operation of a definite quantity. This process naturally takes place in our environment and through our activities. For example, many natural systems evolve, in order to minimize their potential energy. Modeling these phenomena then largely relies on our capacity to artificially reproduce these processes. In parallel, optimization problems have quickly emerged from human activities, notably from economic concerns.

This special session would solicit the submission of original papers on reliability and optimization of structures which look for reviewing uncertainty tools, system reliability, optimal design of structures and their optimization (of sizing, form, topology and multi-objectives) – along with their robustness and issues on optimal safety factors. Optimization reliability coupling will also be tackled in order to take into account the uncertainties in the modeling and resolution of the problems encountered. The following topics are of particular interest:

- Reliability in mechanical systems.
- Optimal structural design.
- Multi-object optimization with uncertainty.
- Robust optimization.
- Reliability-based topology optimization.
- Reliability-based structural optimization: stationary & dynamic problems;
- Risk management & optimization;
- Modelling of extreme events;
- Structural health monitoring, system identification and damage detection.

