

NON-LOCAL MODELS FOR PLASTICITY, FRACTURE, AND INTERFACIAL PROBLEMS

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ABSTRACT

Non-local formulations have opened new horizons in the modelling of plasticity, fracture, and a variety of interfacial problems. Examples include the development of strain gradient plasticity models to capture size effects in metal plasticity, the success of phase field and non-local damage models in predicting complex fracture phenomena (see, e.g. [1]), and the use of Allen-Cahn formulations for interfacial problems such as microstructural evolution or corrosion [2].

The aim of this session is to bring together scientists working on non-local modelling of plasticity, fracture and interfacial problems to discuss new insights on understanding and predicting plastic deformation, material failure and interfacial material phenomena. Of interest is also the application of these non-local and phase field-based formulations to multi-physics and multi-scale problems.

REFERENCES

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- [2] Cui C., Ma R., Martínez-Pañeda E., *A phase field formulation for dissolution-driven stress corrosion cracking*, Journal of the Mechanics and Physics of Solids 147, 104254 (2021).