

Minisymposium Information

Minisymposium Title: Adaptive methods for image based numerical simulations

In recent years, 3D imaging has become a powerful tool in several scientific domains (material, medical, environmental ...), providing accurate geometrical and topological information. Important imaging techniques include 3D X-Ray tomography, which provides access to 3D internal structures, but also LiDar (optical laser) acquisitions, giving 3D topographies. Nowadays accuracy of these systems implies also the existence, analysis and manipulation of very large data sets, which may concern billions of voxels or points.

The main goal of the proposed MiniSymposium is to bring together researchers that are concerned by the development of numerical techniques for direct simulation based on images. The related research fields include adaptive methods covering the initial data processing (acquisition, analysis, segmentation, ...), its reconstruction in the wanted numerical format (mesh or grid generation and adaptation...), or simulation applications like: digital materials modelling under different solicitations; environmental studies for pollutant dispersion or climate analysis; patient oriented biomechanics and biological systems , ...

The major outcome of this Symposium will be the creation of bridges between researchers that work on these different fields, by establishing a synergy driven by the numerical techniques used, applied here to obtain the most realistic simulations.

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