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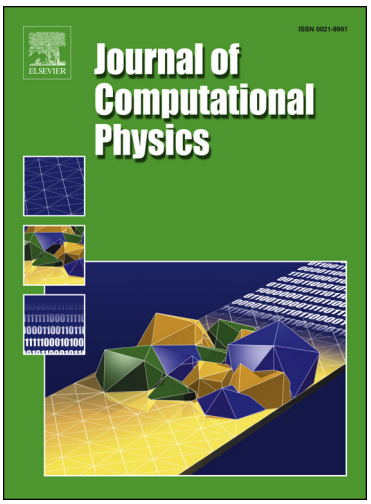

Fast spherical centroidal Voronoi mesh generation: A Lloyd-preconditioned LBFGS method in parallel

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Highlights

- The new method could incur computational time costs one order of magnitude smaller compared with some existing methods for generating large-scale highly variable-resolution meshes, while also providing significantly improvements in mesh quality.
- The parallelization scheme is implemented with no need of modification nor global gathering of local triangulations. It features well-balanced loading of mesh points and has excellent performance with respect to strong scaling efficiency.
- The method is also applicable to the construction of meshes of general domains, as for limited-area climate modeling.