RÉPUBLIQUE FRANÇAISE
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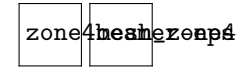
ONERA
THE FRENCH AEROSPACE LAB

Création de maillages pour optimiser les performances de solveurs haute-précision pour la résolution d'équations aux dérivées partielles

Why quad mesh ?

- Meshing: discretization into elementary cells, essential for numerical simulations (fluid mechanics, electromagnetics, etc.)
- "Particulary Quad Mesh": excellent properties for several schemes (FD, FEM, SD, DG, etc.)
- More sructured: low storage, optimized for parallel computing.
- Q_k vs P_k: richer, more precise, ...
- Anisotropic stretching: boundary layer modeling, captures strong variations, ...
- Tensorial structure: adapted to order elevation, quadrature, sparse systems, ...



- **However, generating "good Quad Meshes" is complex.**