figures

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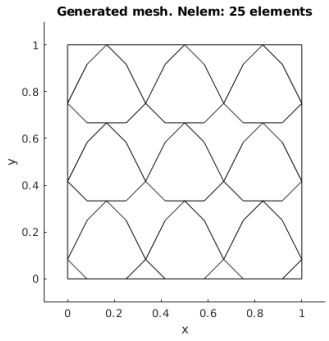
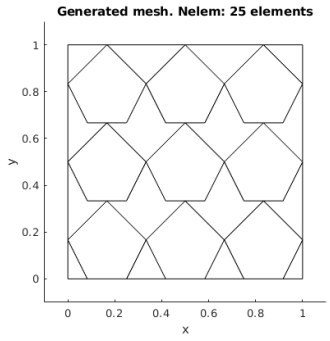
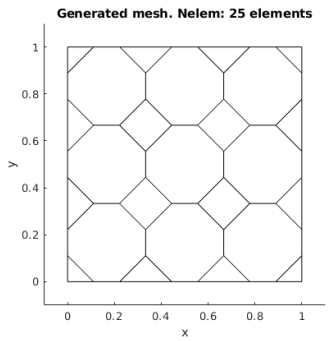
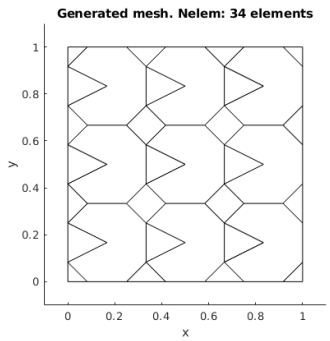
January 2021

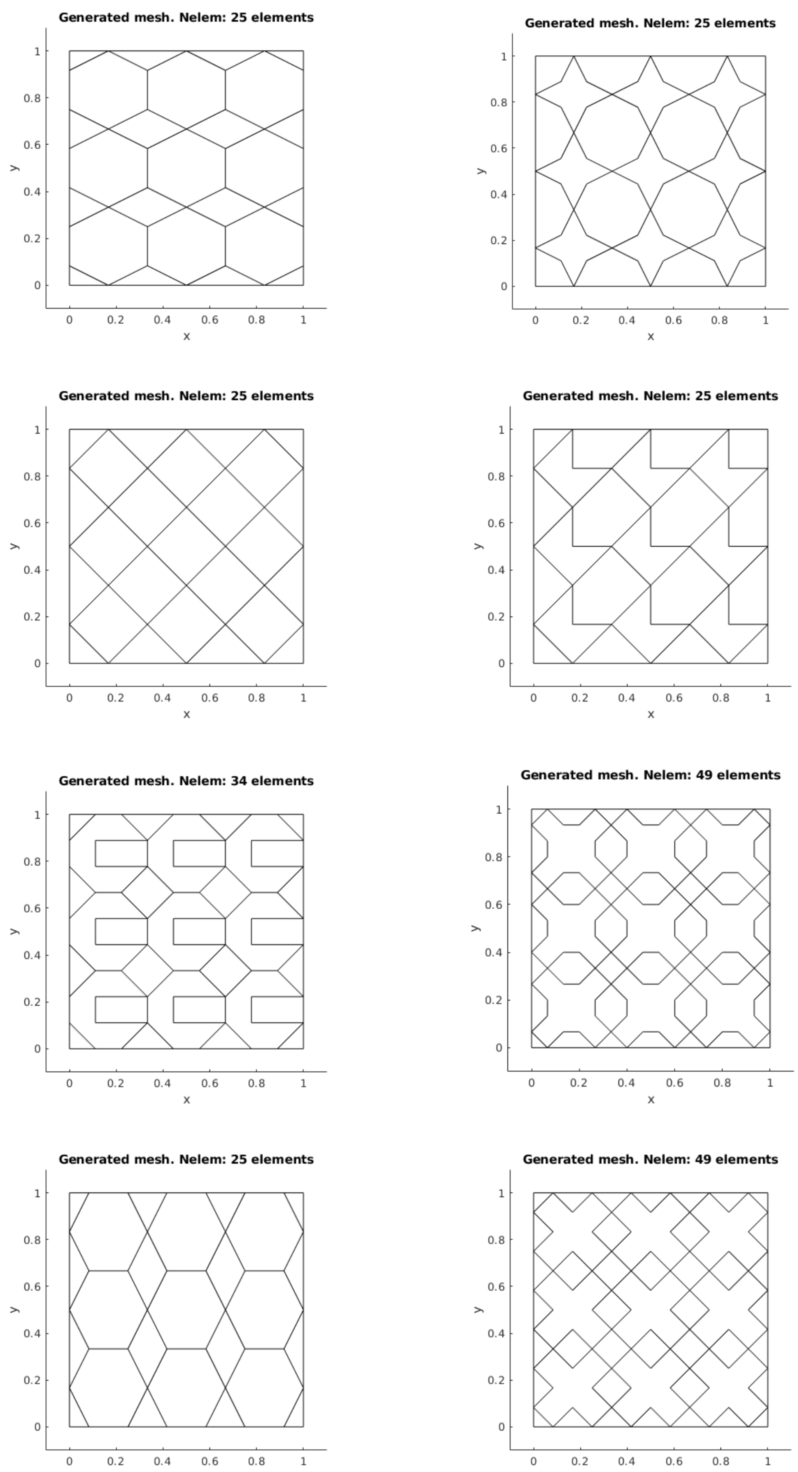
1 2D meshes available (users can also define his own)










Generated mesh. Nelem: 25 elements
Generated mesh. Nelem: 25 elements
Generated mesh. Nelem: 25 elements
Generated mesh. Nelem: 25 elements
Generated mesh. Nelem: 34 elements
Generated mesh. Nelem: 49 elements
Generated mesh. Nelem: 25 elements
Generated mesh. Nelem: 49 elements
x
y

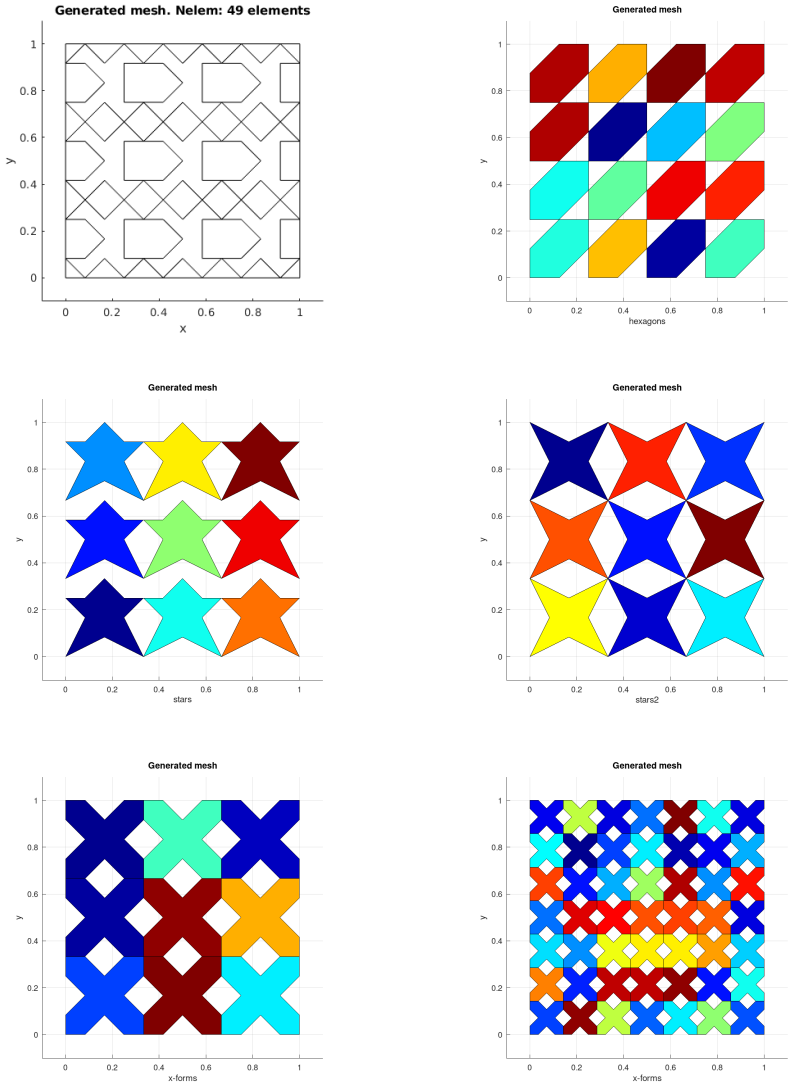


Figure 3: X-forms

Remark:

- Users can also define his own principal element (face), report the coordinates into the algorithm, give the mesh domain ([a,b]x[c,d]) and the desire number of principal elements. Then the algorithm will charge to generate the desired mesh in taking into account the other edges and form supplementary elements. And after, it remove all unused nodes and its corresponding vertices and finally reorganize all node numbers.
- The algorithm will also give all informations about neighbours of each elements, nodes, edges, edge's connection with each elements (normal vectors) and nodes on the boundary.
- All the informations are saved in a **.mat** file that can be used.

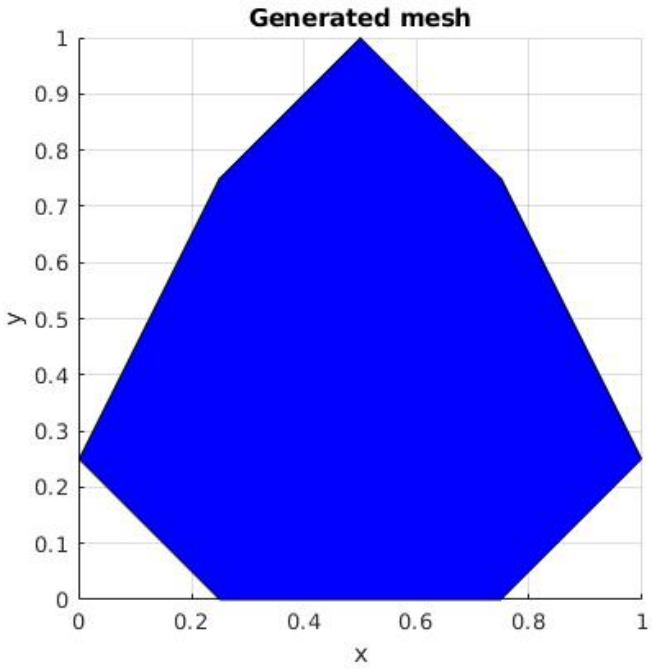


Figure 4: Example of principal element of the mesh.

2 3D meshes available (users can also define his own)

To be continued ...