

# Implementation of the finite cell method (FCM) into a commercial finite element software

## Setting:

- In practice, geometries come mostly from computer aided design (CAD) tools and use a boundary representation scheme
- Mesh generation for these geometries is still a problem as it often required manual work
- Immersed methods such as FCM can circumvent this problem by using non-conforming meshes
- The numerical integration becomes more challenging due to the presence of a discontinuity in the integrand

## Tasks:

Implement the finite cell method into a commercial software:

- Understand the fundamentals of the method and its challenges
- Identify a suitable finite element software package
- Sketch the work-flow of the finite cell analysis in this software
- Implement this design and compute common benchmark problems to verify the code

## Project Characteristics

Modeling:	★☆☆☆☆
Mathematics:	★★★★☆
Programming:	★★★★★
Science:	★★☆☆☆

