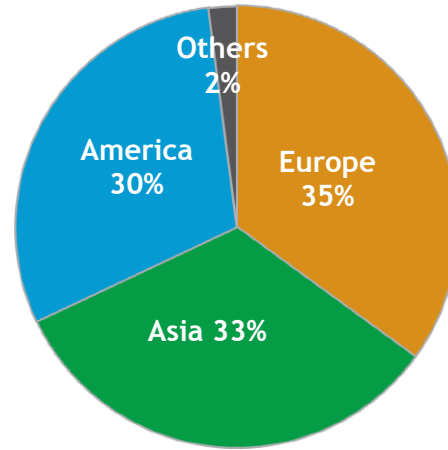
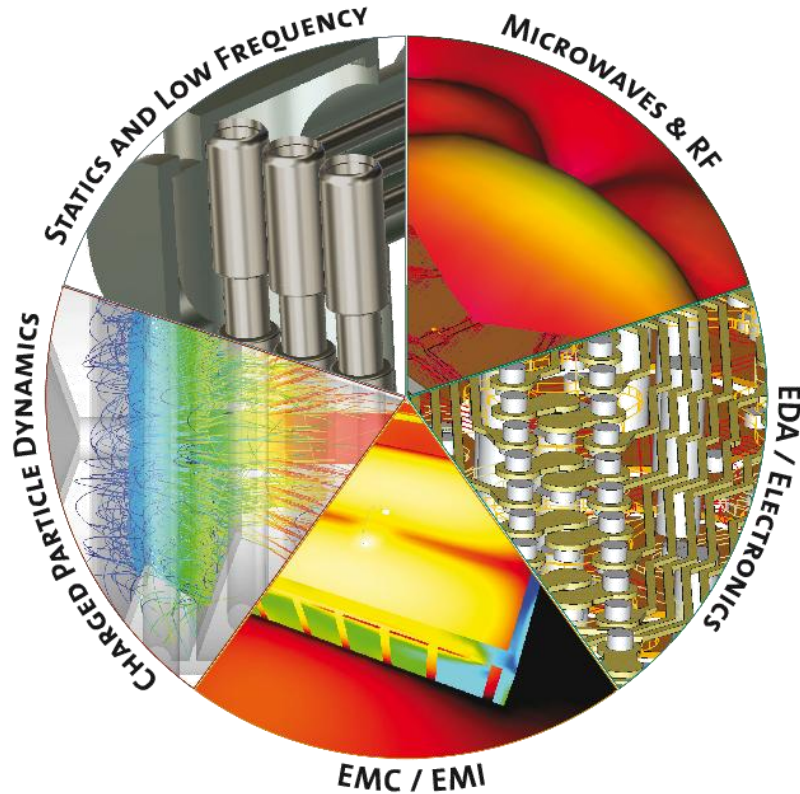


CST AG

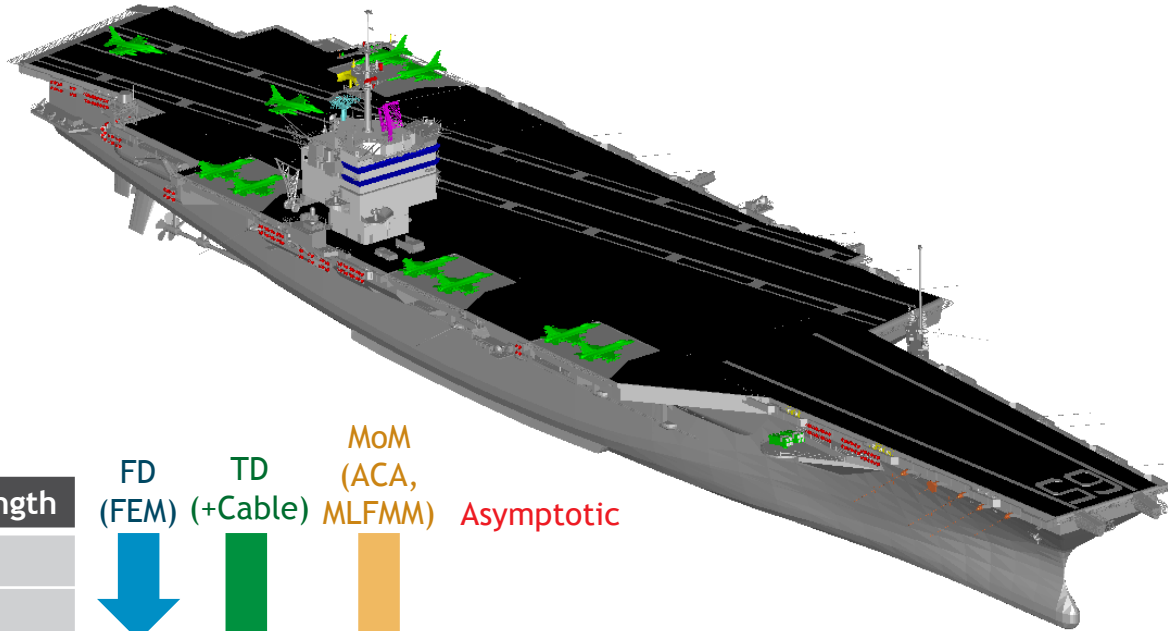


- founded 1992
- ~290 employees (100 developers)
- world-wide distribution network
- focus on EM simulation

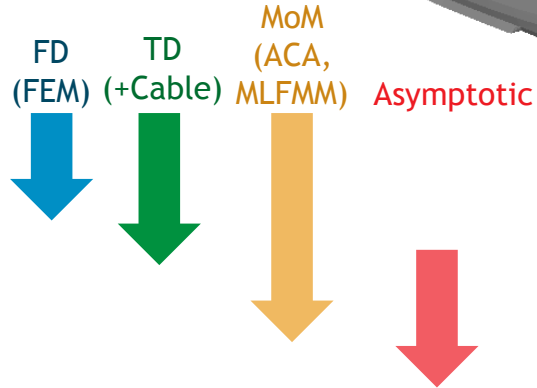
Electromagnetic Simulation



Complete Technology



Application	Frequency	El. Length
Lightning	1 MHz	0.5λ
HF communications	10 MHz	5λ
EMP	100 MHz	50λ
L-Band Communications	1 GHz	500λ
Radar	10 GHz	5000λ

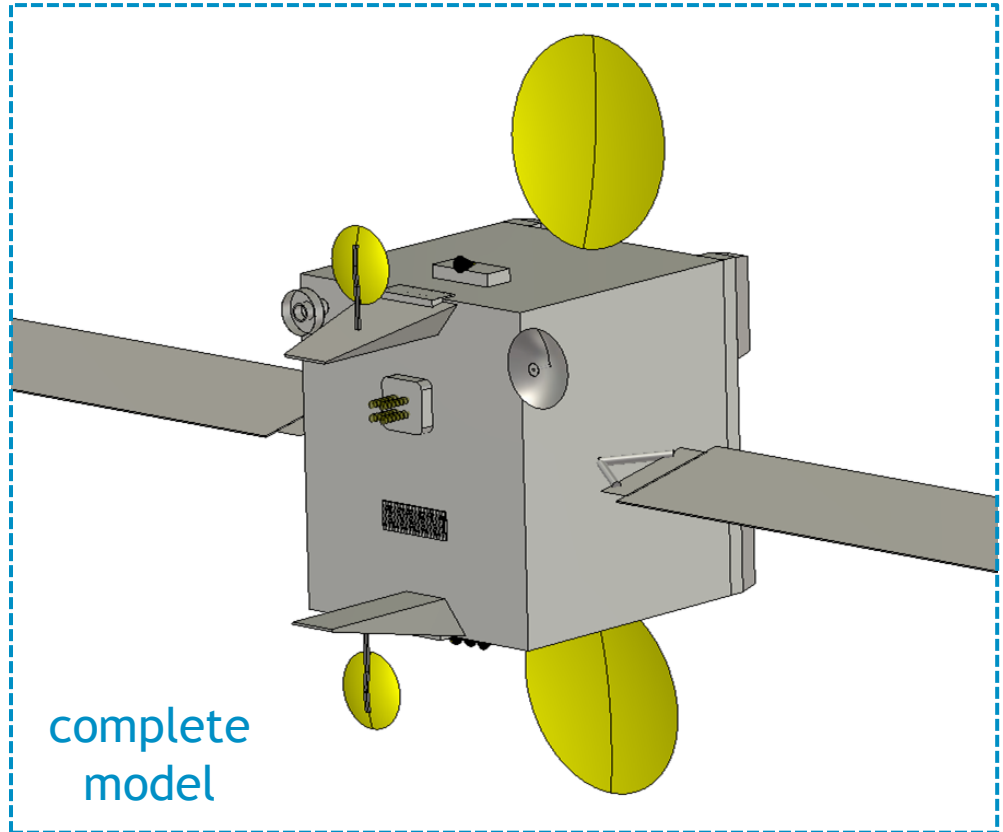
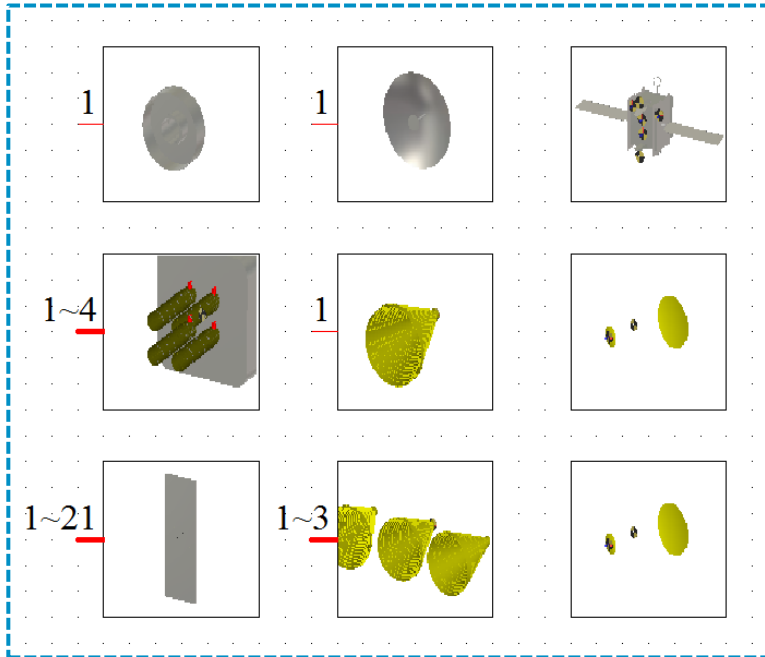


Multiscale Problem

Schematic



3D Layout

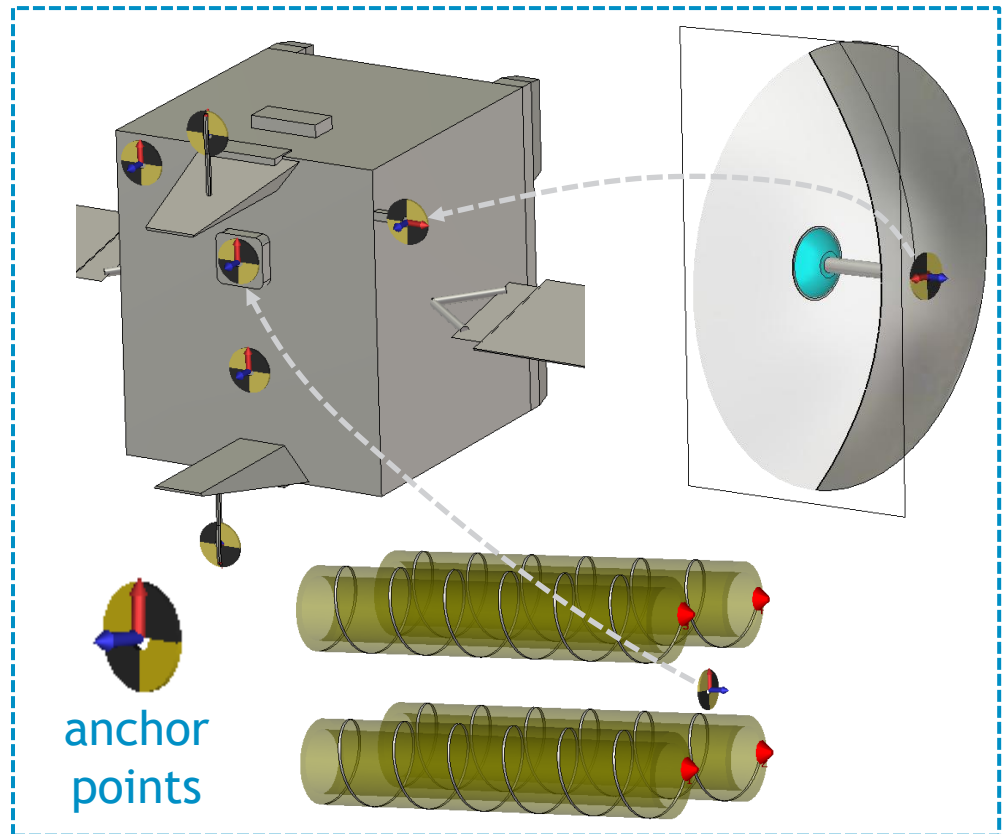
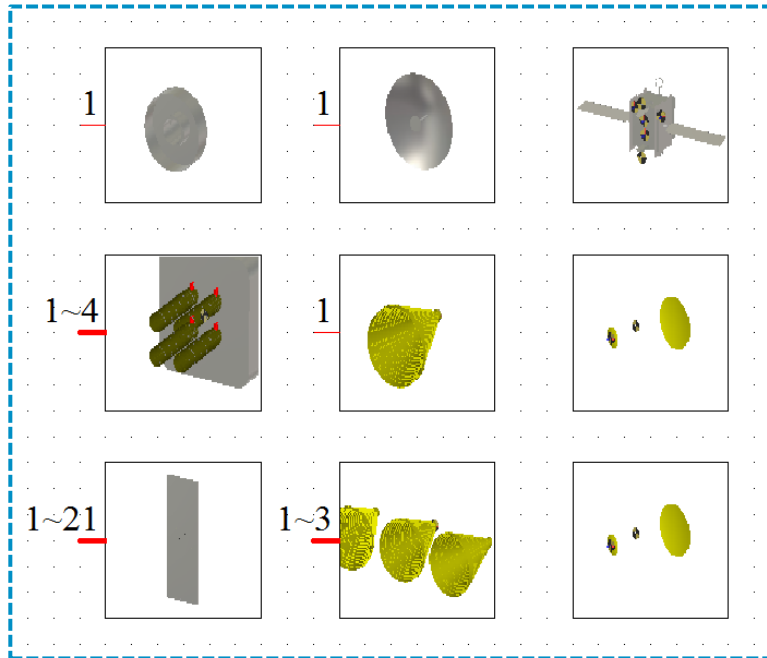


Construction of Model

Schematic

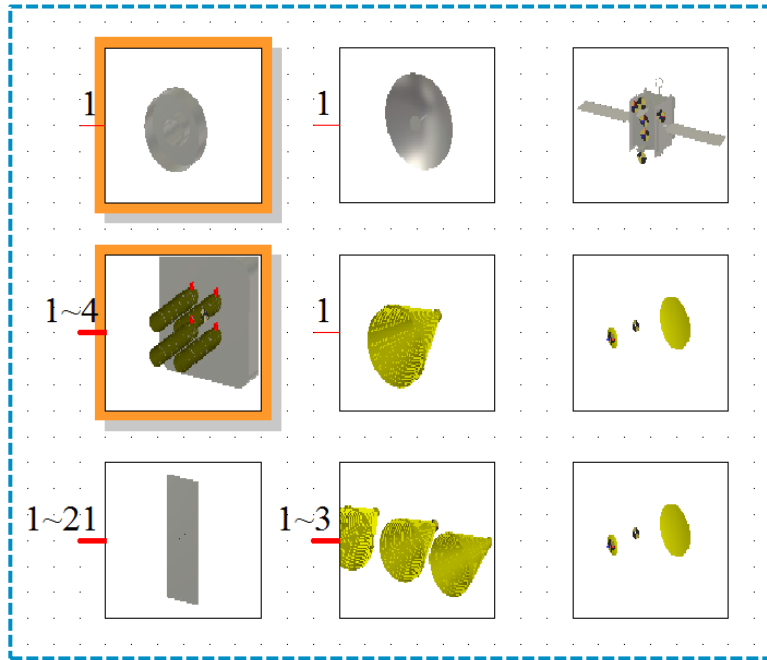


3D Layout

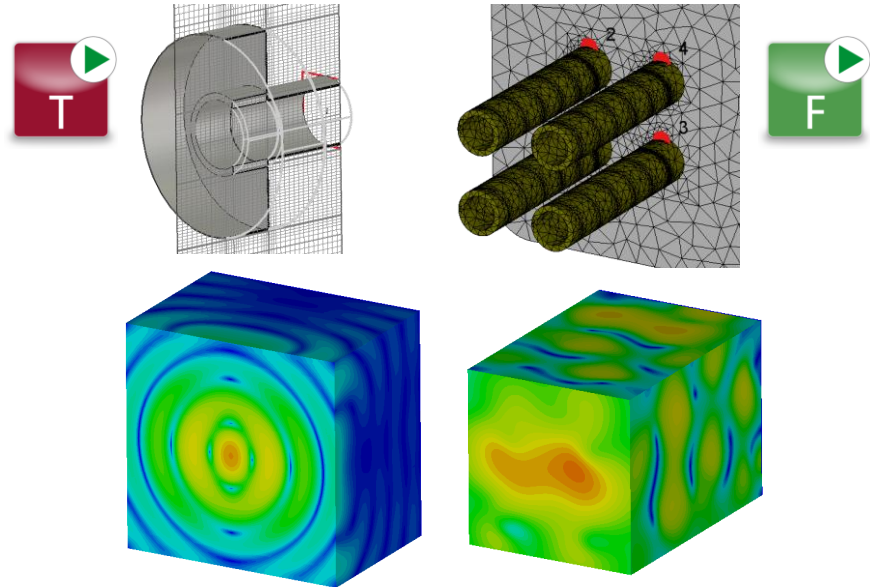


Coupling Between Antennas

Example 1: horn and helices installed perf. and coupling

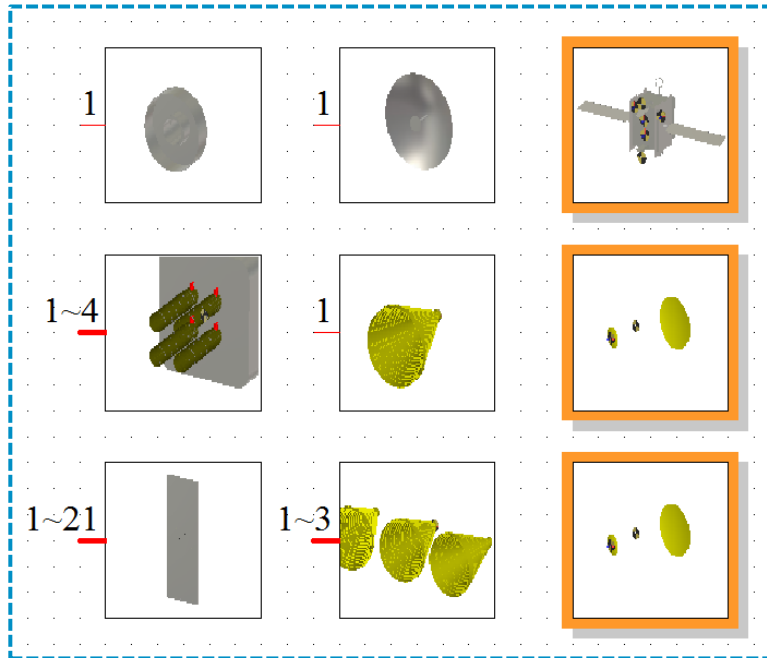


Step 1: calculate near field sources



Coupling Between Antennas

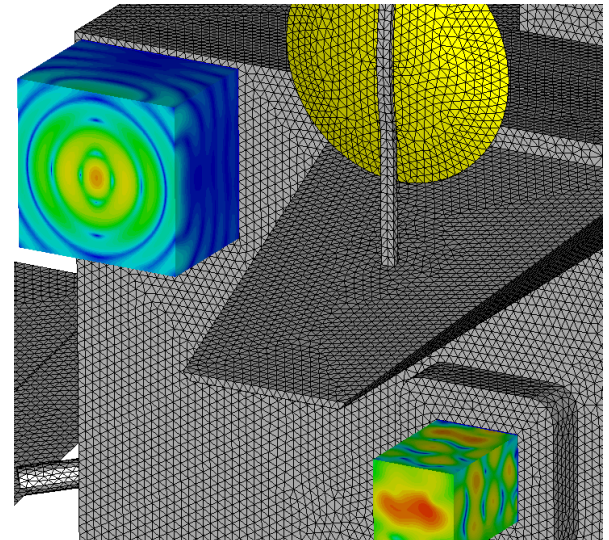
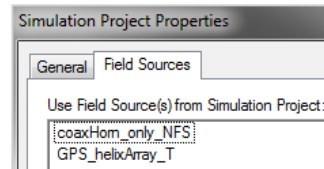
Example 1: horn and helices installed perf. and coupling



Step 2: simulate sources on satellite



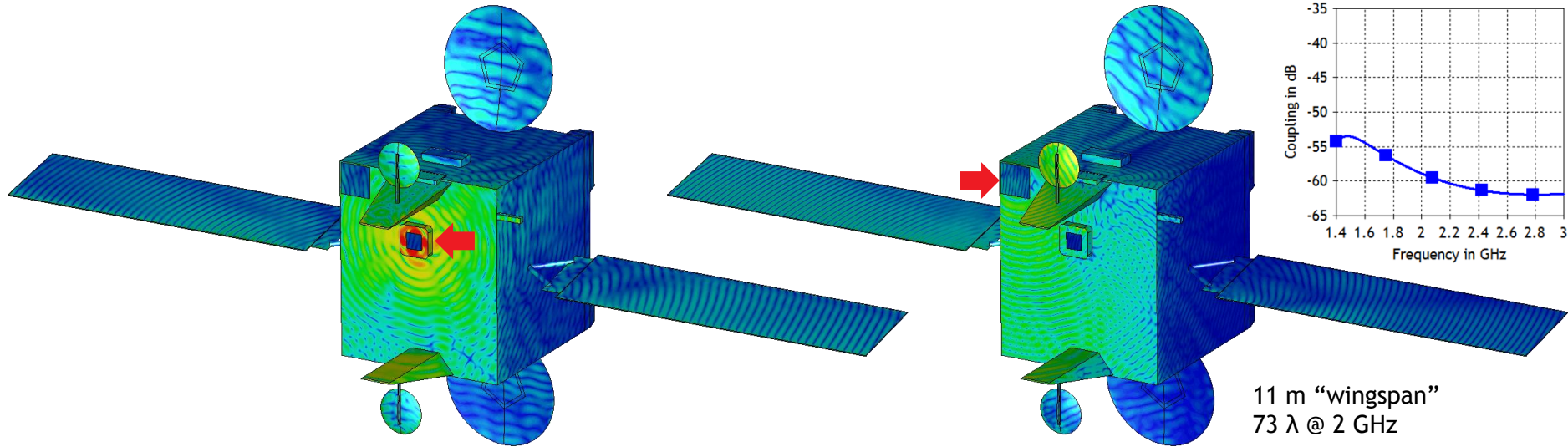
MLFMM & GPU



Coupling Between Antennas

GPS Array at 1.575 GHz

TT&C Horn at 2 GHz



using a nearfield source as excitation



surface current density

Our Contribution

- Project idea is in-line with our multi-scale EM strategy
- Discuss applicability of solutions to industrial problems
- Provide software as prototyping platform with API's (EM and circuit simulation)
- **We are not receiving funding from this project**