



<b>Assessment of antenna configurations for microwave tomography</b>
<i>project title</i>
<b>Technical University of Denmark</b>
<i>host institution</i>

### **Project description:**

#### **Purpose:**

select the best configuration of 32 monopoles among these options:

- horizontal antennas in 4 layers (current DTU layout)
- horizontal antennas in 8 layers (modified DTU layout)
- vertical antennas in a cylindrical geometry at 4 different heights
- a few variations of the vertical layout

#### **Tasks:**

- build an EM forward model e.g. using Comsol
- make an SVD analysis of sensitivity (Shea 2012, P.C.Hansen book, ...)
- conference paper
- fabrication of new antenna system (electrical and mechanical workshop at DTU)
- measurements with original antenna system
- transfer of electronic hardware to new antenna hardware
- measurements with new system
- journal paper

#### **Required other work:**

- electrical isolation of antenna (needed for patient approval)
  - leak current measurements on old antenna
  - test of paint, gelcoat, etc.
  - leak current measurement on new antenna
  - EM modelling.

[http://www.ems.elektro.dtu.dk/research/research\\_areas/Antennas](http://www.ems.elektro.dtu.dk/research/research_areas/Antennas)