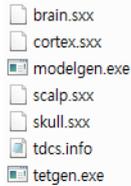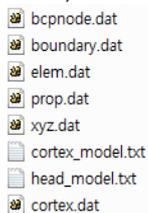# How to generate users' own head-cortex models

- Generate boundary element models in CURRY6 for Windows (Compumedics, Inc.)
- Export the boundary element data to ASCII-format data files (*.sxx extension, please refer to the CURRY6 manual)
- You can export four data files (e.g., scalp.sxx, skull.sxx, brain.sxx, and cortex.sxx). The first three data files are boundary element models (3-layer model) and the last one is a refined cortical surface model. Please download an example dataset at http://www.cometstool.com
- Download executable files at the Comets download site and save them to a temporary folder with arbitrary name. Move the sxx files to the same folder.
- The folder should contain the following files.

```
brain.sxx
cortex.sxx
modelgen.exe
scalp.sxx
skull.sxx
tdcs.info
tetgen.exe
```

- Open 'tdcs.info' file in text-editor and write the file names containing scalp surface, skull surface, brain(inner skull) surface, and cortical surface data (pls keep the order), as shown below. Then, save the file.

```
scalp.sxx
skull.sxx
brain.sxx
cortex.sxx
```

- Execute 'modelgen.exe'!!
- Then, the following files should be newly created.

```
bcpnode.dat
boundary.dat
elem.dat
prop.dat
xyz.dat
cortex_model.txt
head_model.txt
cortex.dat
```

- Create a copy of the Comets toolbox main folder, and replace the newly generated data files with the existing ones.
- (IMPORTANT) In the Comets toolbox main folder, you have to delete 'irowjcol.da0' file. Otherwise, you cannot get accurate FEM solution. The file is used to accelerate the analysis.
- Then, execute Comets in the newly created Comets folder. You can use your own head-cortex model for the analysis.

  (TIPS) sensor_name_position.txt file in the Comets toolbox folder has the information of 10-20 electrode locations. If you want to use 10-20 electrode location information in your own head model, you have to modify the file (easy to understand).

  (TIPS2) *.sxx file from CURRY7 has somewhat different format. You can find a modified version of modelgen.exe program at the Comets download site.

  If you need any help, please do not hesitate to inform us!
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