Getting started with the cochlear implant model

1. Download and install PyCharm Community Edition.
2. Create a new Project
3. Add python packages to the Project: numpy, scipy, lmfit
4. Place relevant ImplantModel files in the Project
5. Add a run configuration to the Project to run voltage\_calc.py. This script precalculates the table of voltages and activation functions used by the rest of the model.
6. Edit voltage\_calc.py. Main parameters to review/edit: radius, res\_int, res\_ext, zEval, output\_filename. Running this will probably take overnight, depending on the machine.
7. Alternatively, use the file provided as a voltage table.
8. Run the forward model. First, add a run configuration to the Project to run FwdModel4.py. Then edit common\_params.py to set the specific scenario(s) to run.
9. Before running the inverse model it's critical to run the 2D forward model. Add a run configuration to the Project to run FwdModel4\_2D.py. Then run it.
10. Run the inverse model. Add a run configuration to the Project to run InverseModelCombined\_SE.py. Run the file. While it is running you will see the average threshold error in dB scroll in the console.