

11T Quench Detection

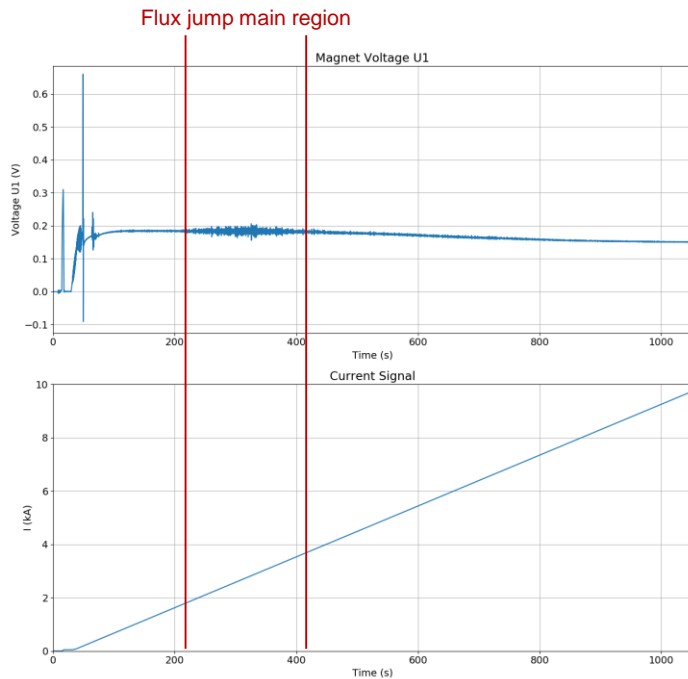
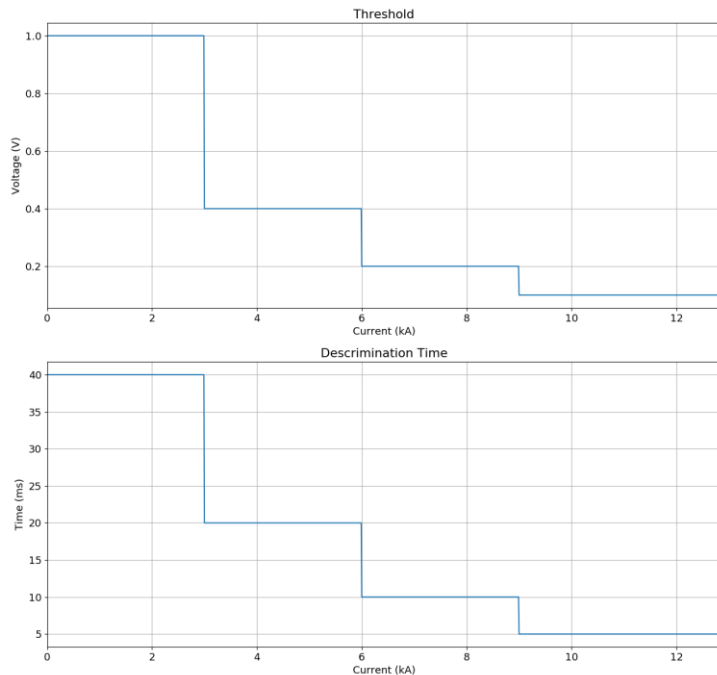


Image: hybrid 11T prototype flux jumps

- Depending on their amplitude and width voltage perturbations created by flux jumps in the Nb_3Sn superconductor may cause false positives in quench detection system (QDS).
- As magnet protection requires a rather short evaluation time of the QDS, it is not always possible to filter those type of perturbations efficiently.

Quench Protection Enhancement



- Detection settings can however relaxed at lower currents without compromising the protection of the magnet.
- Profiting from the fact that the maximum of voltage perturbations due to flux jumps occurs at low currents, the introduction of current dependent QDS settings allowed successfully to overcome the problem.

Image: example with 4 different current dependent threshold settings