High-speed thermal imaging of quench in HTS tapes using fluorescent films
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- Haugen et al. (2007) *IEEE TAS*, High resolution thermal imaging of hotspots in superconducting films
- Poster ID:1257, *Thu-Af-Po4.11*
Challenge with HTS Tapes

- **Quench** needs further studying
- **Normal Zone Propagation Velocity** is slow in HTS
  - Can lead to the destruction of tapes, cables and devices

Burned HTS tape
Fluorescent Imaging Concept

- Recording speed: 2500 images/second
- Quench it

HTS Tape excited with UV light

Graph: Light intensity vs Temperature

- Measured with Marius Jakoby, IMT, KIT
Surface Temperature Mapping

Reference

Boiling LN₂

Temperature [K]

3 cm

3 mm
Surface Temperature Mapping

Reference

During quench

Boiling LN₂

3 cm

3 mm

Temperature [K]
Conclusions and outlook

- Observation of a quenched, normal zone in 2D
- Temperature measurement
- Filamentary HTS tapes
- Cables, e.g. ROEBEL

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