



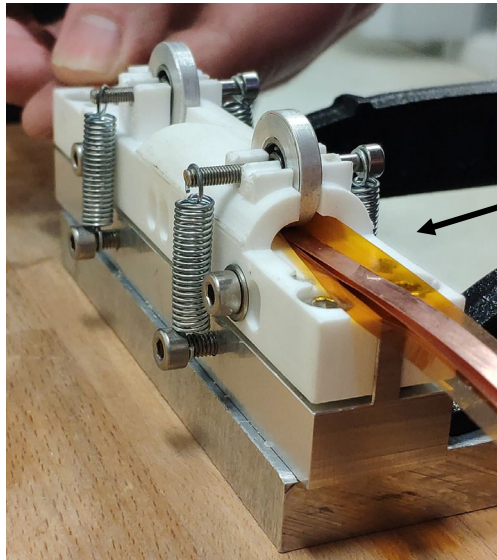
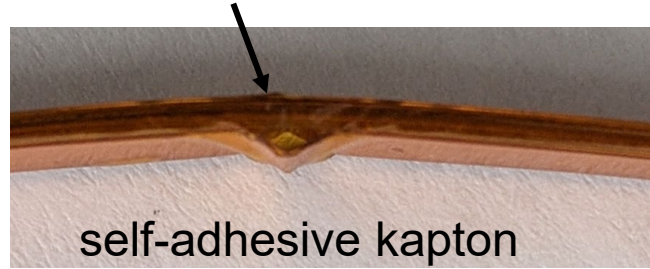
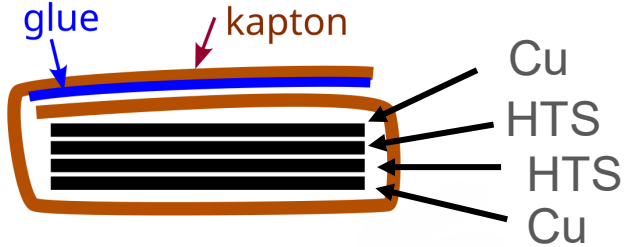
ELYTT ENERGY



IFAST STEERING COMMITTEE 14 DECEMBER 2023. TASK 8.5

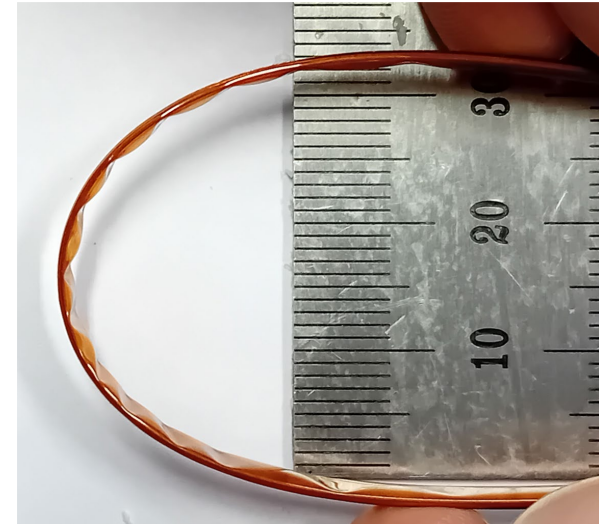
Winding

Kapton must not stick to tapes, otherwise problem when bending



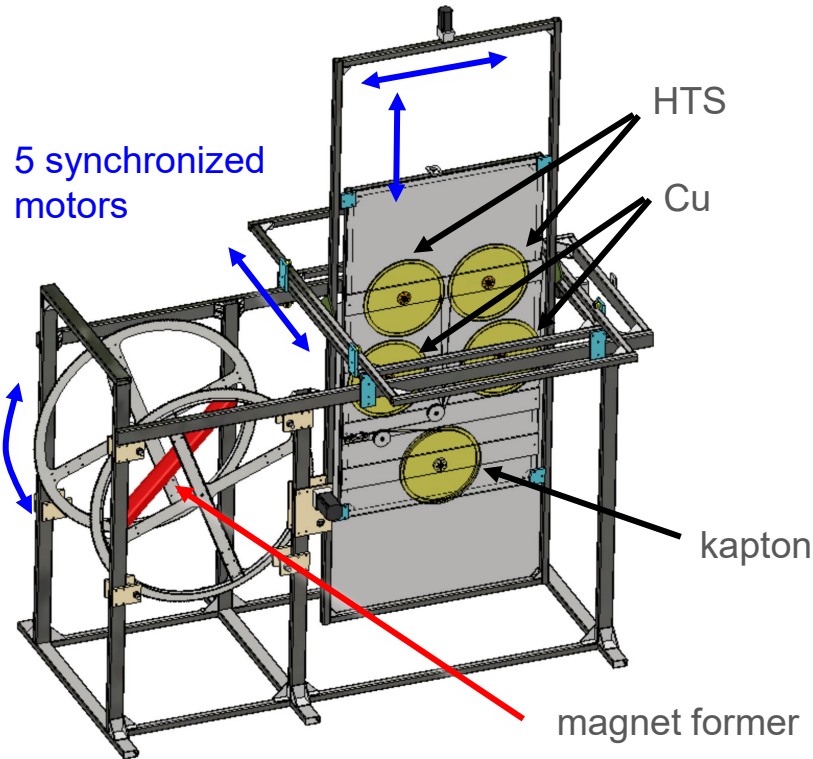
Kapton “sleeve-ing”
developed in-house, partially
adhesive-coated tape from
cmc.de

Insulated cable robust, does
not open when bent



Winding process & machine

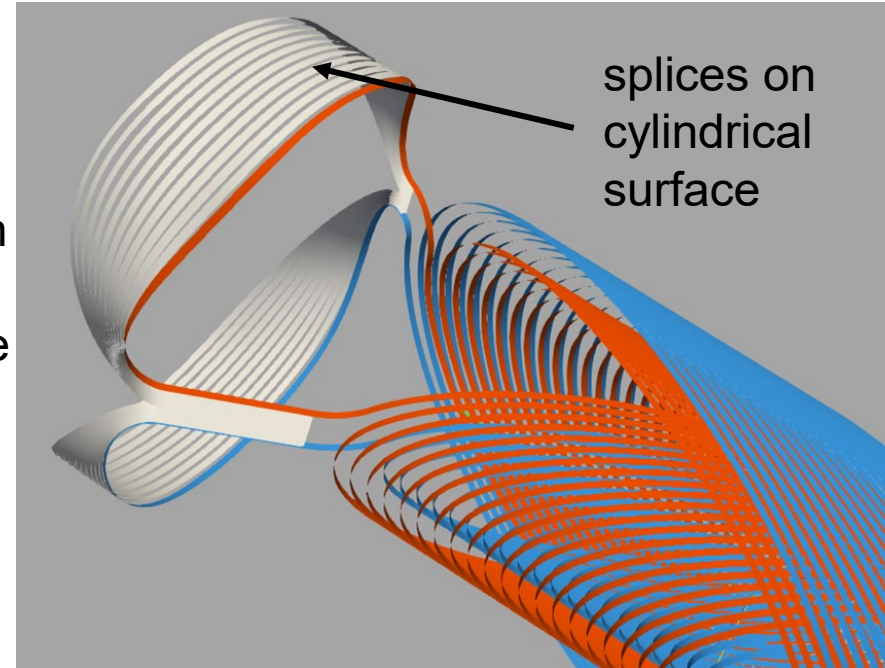
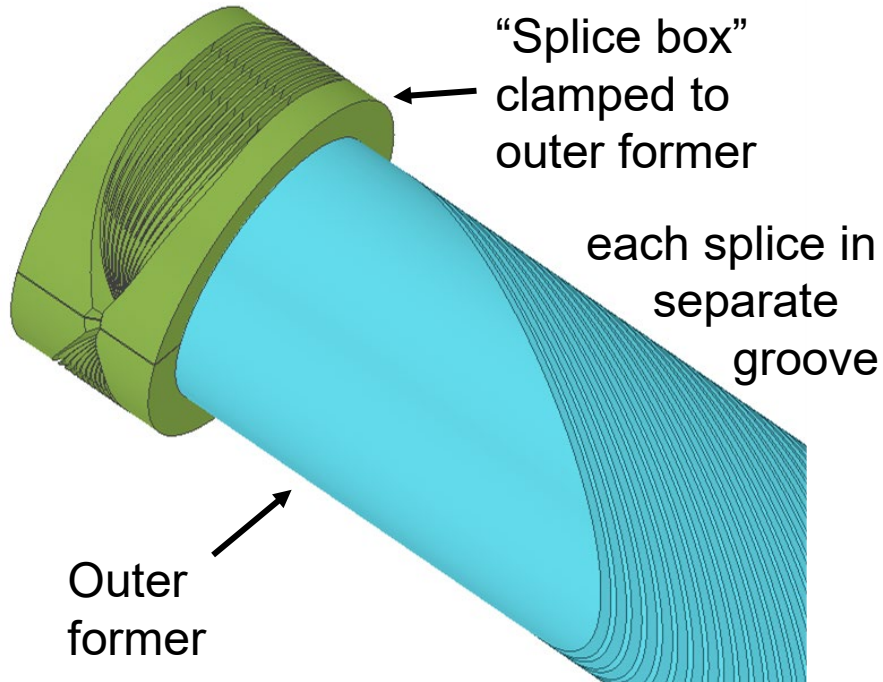
- Create the composite cable (2 x Cu + 2 x HTS in kapton) “on the fly”
- Avoid problem due to different tape lengths



Under construction

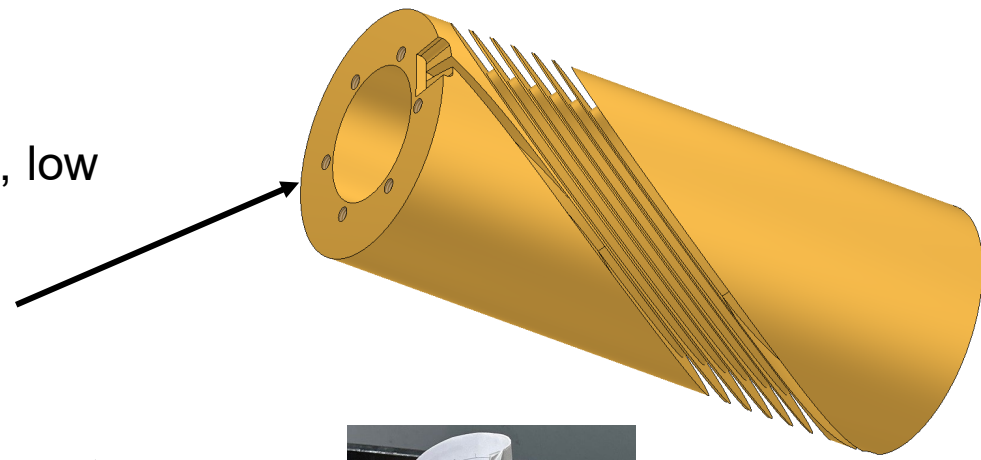
Winding & splice geometry

- Splices at both ends (no layer-jump... tape is difficult)
- C++ code to optimize paths, export/import to Autodesk Inventor



Mandrel manufacturing test

- Material: alu-bronze (machinability, low electrical conductivity)
- 6-turn test piece with **varying wall thickness (0.4-0.9 mm)** to:
 - find capable company (not easy!)
 - assess machining procedure, parameters, etc
 - test/practice winding
- hsm.as - planned: december (machine failure...)



Test facility and HTS tape

- Magnet test programmed at INFN-LASA (Milan):
 - Upgrade of one test facility at INFN-LASA;
 - Customized insert for the HTS CCT (1 kA, 10 -50 K);
 - Funded in the frame of EU recovery project IRIS;
- The procurement of HTS tape is underway by CERN (A.Ballarino);
 - Faraday Factory Japan (about 2.5 km);
 - 1 km already arrived at LASA-INFN;
 - Delivery of the rest in the coming months.

