

HIGHEST - R&D on wide HTS REBCO conductors

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Content

WP2.1- R&D on wider HTS REBCO conductors

- KC⁴ Equipment Status
- First Wide Tape Coated Conductor Depositions and Characterization
- Next steps

Coated Conductor R&D Pilot Production Line KC⁴ - Timeline



HTS CC Open Lab/Foundry

KIT ITEP	CERN	Third Parties
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Tailored R&D and demonstration operation

CERN	KIT/ITEP
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Funded by HFM/MTET

Baseline R&D Operation
(< 25% capacity use)

I-A Installation	I-B Commissioning	I-C Performance demonstration	I-D Baseline R&D operation
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CERN	KIT/ITEP
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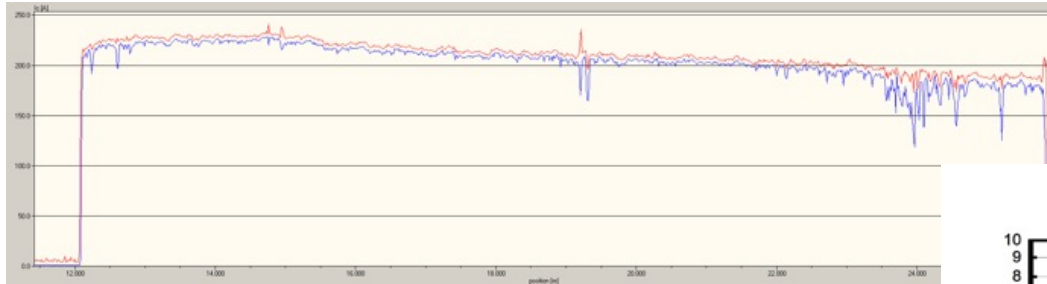
Intermediate 20m length scale

Extension to 100m+ length scale

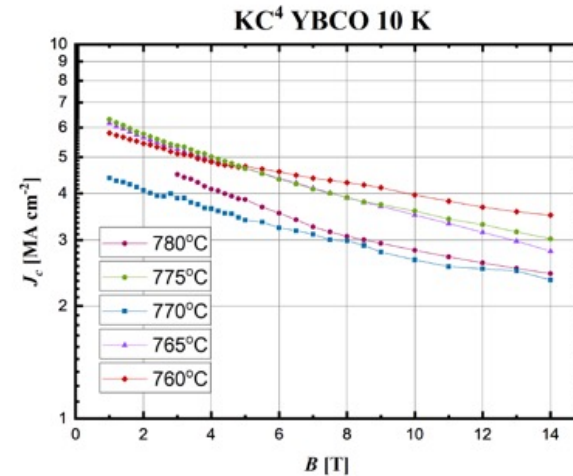



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■ Coated Conductor R&D Pilot Production Line KC⁴ – First results



- J_c milestones reached on 10m samples
- Routine baseline R&D phase started 2024
- CC interlayer electromechanical research program started

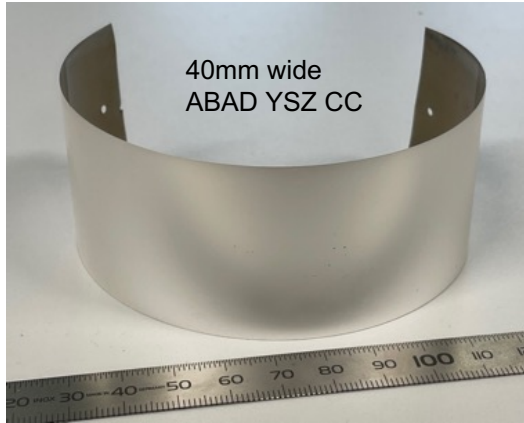


Last Highest Meeting: Next Highest steps towards wider tape coatings

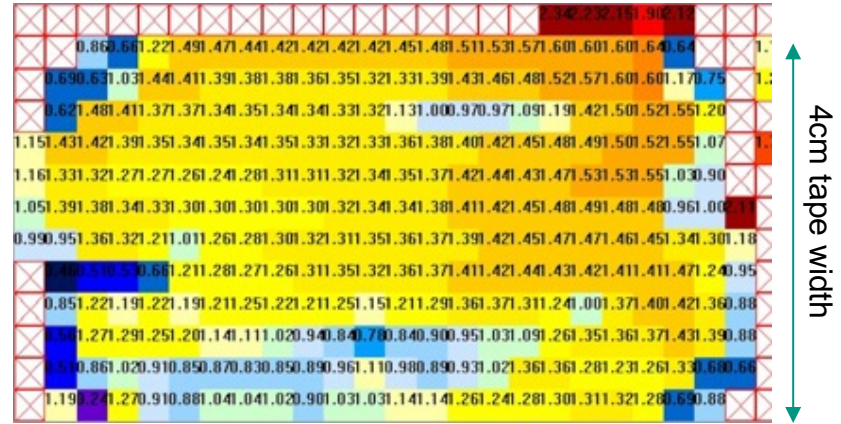
- Using „old“ 40mm wide Bruker ABAD templates (limited availability)
- Testing „old“ 40mm wide dNano Coated Conductors (RABITS template)
- Collaboration with HTS company (US) towards wider IBAD templates (current status: 16mm wide IBAD MgO available)
- Collaboration with Vlad Matias (iBeam, US) towards 100mm wide IBAD MgO templates (first experiments started towards 30mm wide tapes)
- „Waiting“ for Renaissance Fusion activities....
- SUNAM announced work on 100mm wide IBAD MgO, but procurement of such tapes was not possible so far

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Wide Tape Coated Conductors – First results ABAD YSZ



J_c distribution across 4cm wide CC



- 40mm wide Bruker template gives homogenous J_c distribution >1 MA/cm² at 77K
- Available template length: app. 2m

HIGHEST - R&D on wide HTS REBCO conductors

■ Wide Tape Coated Conductors – First results IBAD MgO

- Successful development of 30mm wide IBAD MgO templates with IBeam Inc.
- Successful deposition of HTSC by PLD
- (SC) characterization not yet finished
- Currently 2m tape available
- 10 more meter ordered
- Development towards 50/100mm requires significant investment at IBeam

