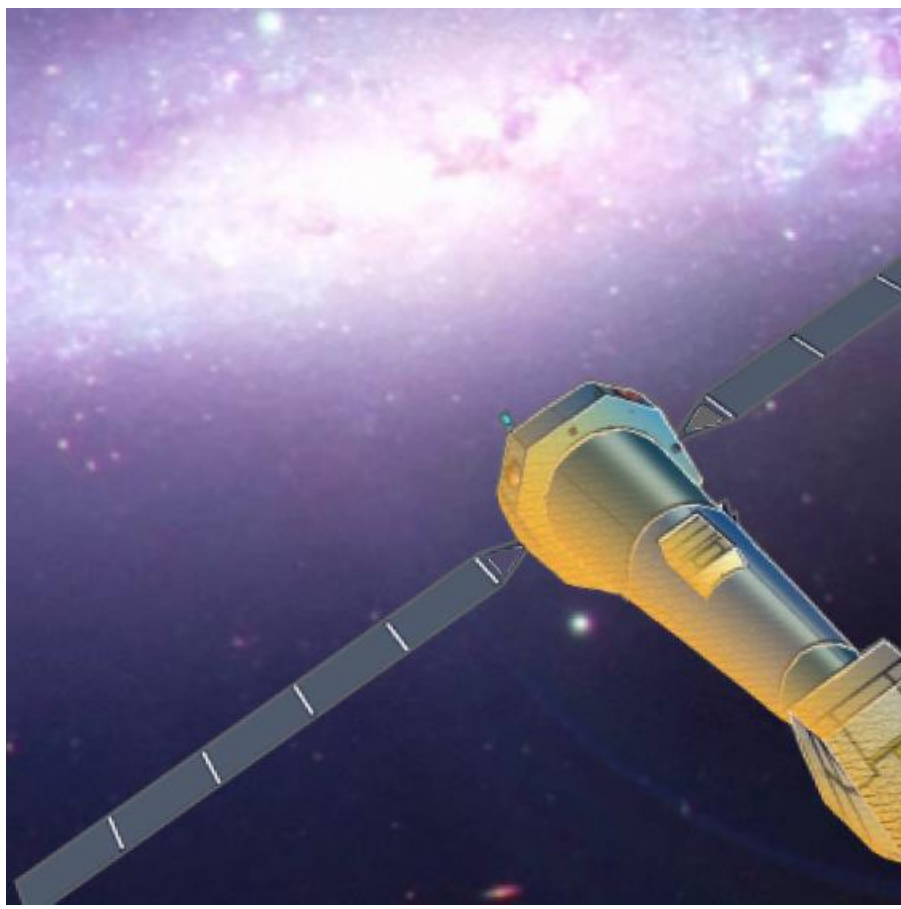


SUPERCONDUCTING AND FLEXIBLE MULTILAYER HIGH DENSITY INTERCONNECT

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Motivation / Needs

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<http://www.athena-x-ray-observatory.eu/>



<http://www.cfas.ox.ac.uk/facilities>

Applications

- Connection to thermal sensitive TES Detector
- RF connection to mK stage experiments
- RF Feed line for Quantum Computers
- SQUID Readout
- General superconducting applications at K or mK stage

Our solution

Thin polyimide support ~34 um total
Narrow tracks 15um
Superconducting Ti/Nb/Ti stack
Multilayer for shielding and rf striplines

Features

Wire bonding interconnects
Standard surface mount technology possible

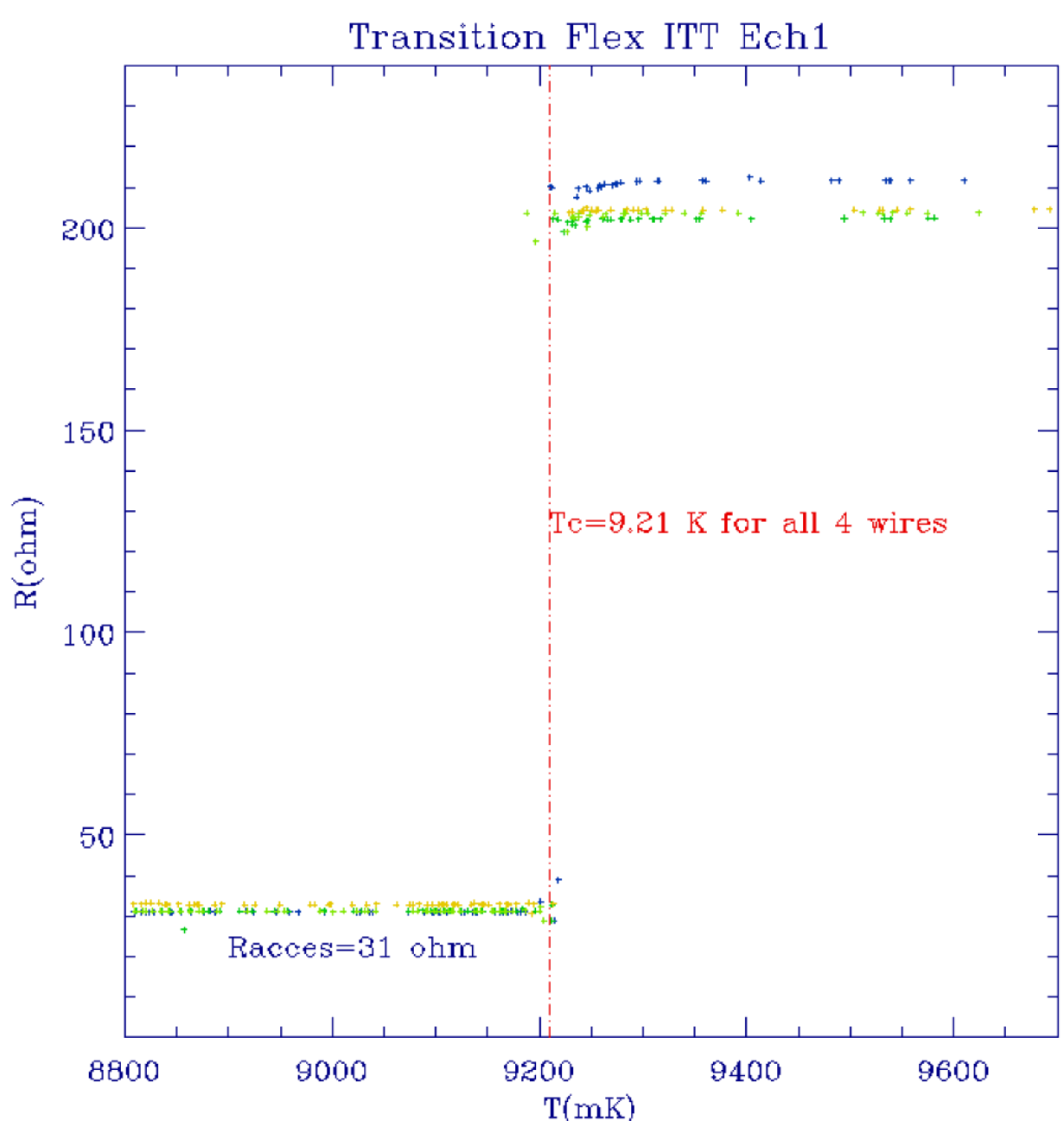
Realization for Athena Satellite project

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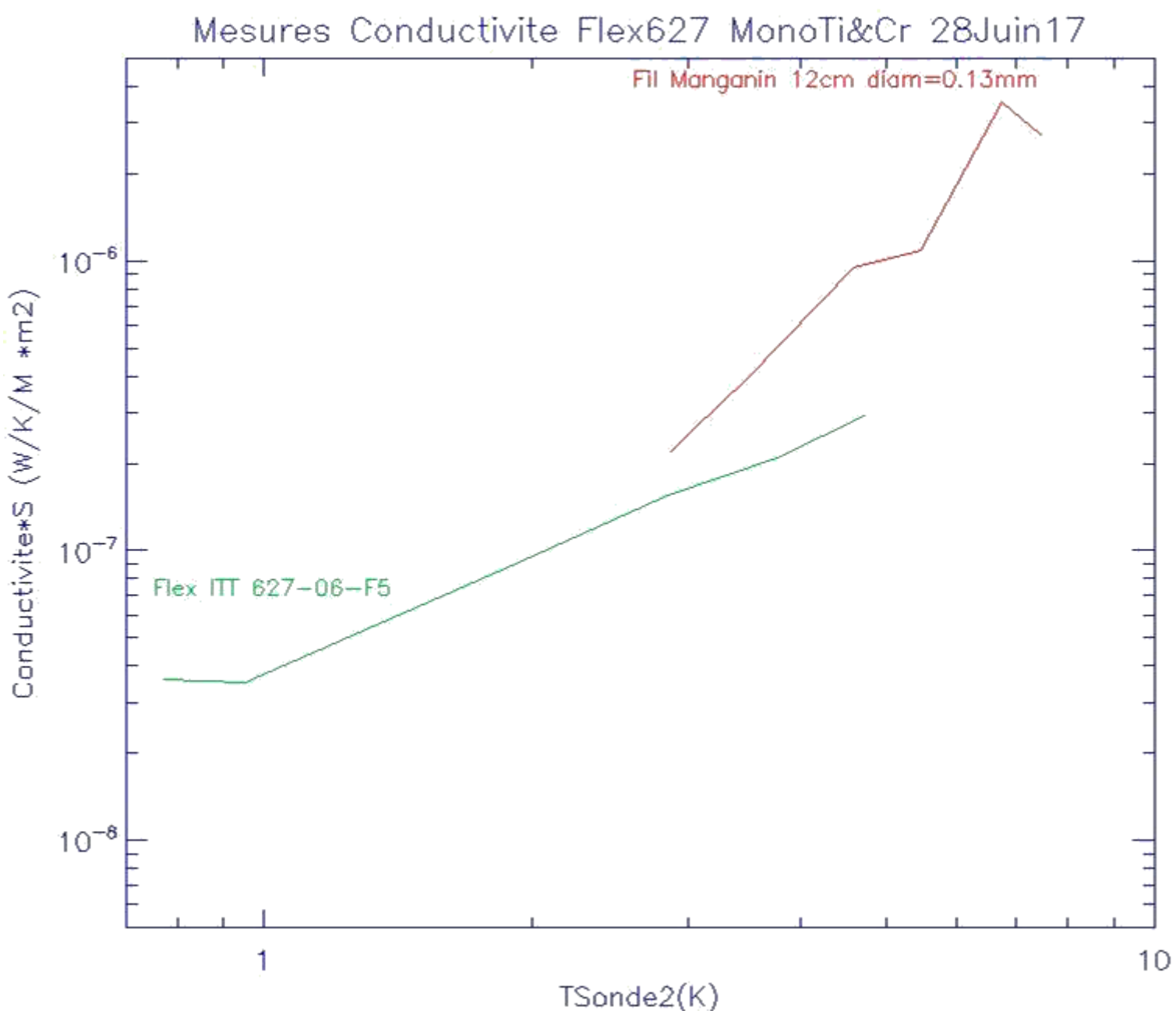
3d Model here

Measurements & Performance

Critical Temperature:
The transition has been improved from 8.3 K in the first batches to 9.21 K in the last.
Metallization layers with better adhesion have varying transition between 8.3 and 9.0 K
Residual resistance ratio (RRR):
Values 1.6 and 4 are measured where the



Transition Temperature measured on 4 lines on cable. The residual resistance is due the access lines in the measurement setup.



Thermal conductivity (arbitrary unit) of a variant with ?? lines and cable width of ?? versus the hottest side temperature. The data is compared to that of a manganin wire (l=120mm, d=0.13mm)

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Radio frequency measurements