ARIES QPR Update

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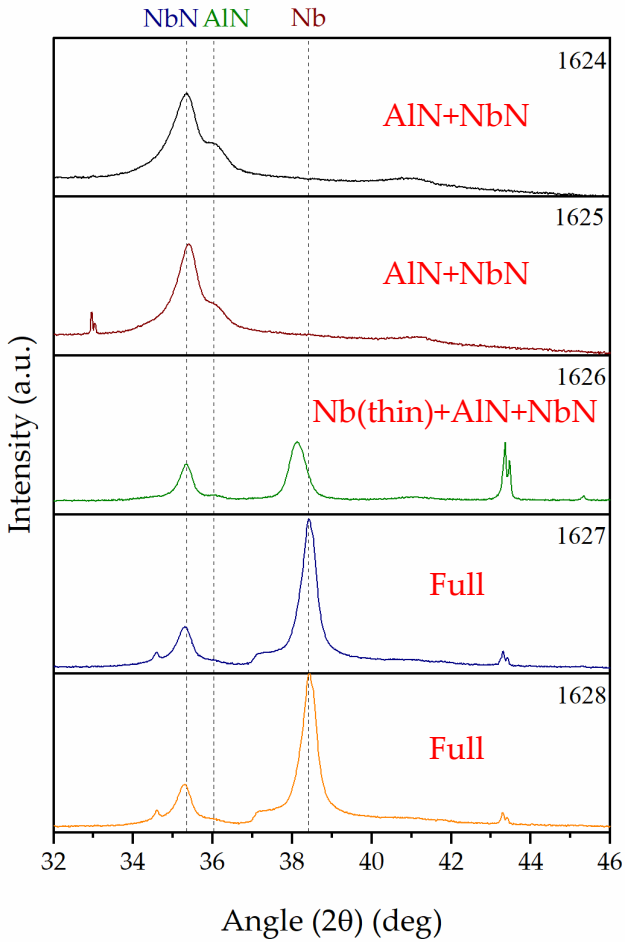
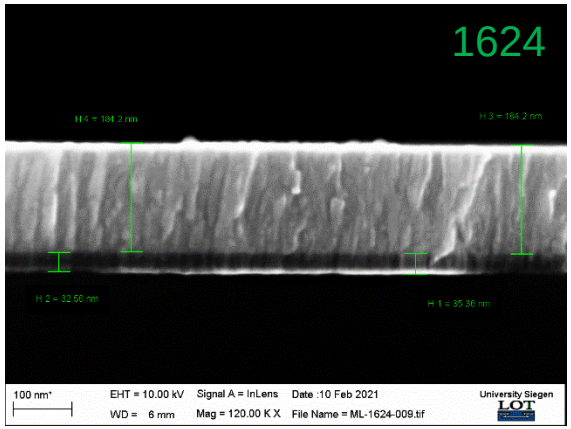
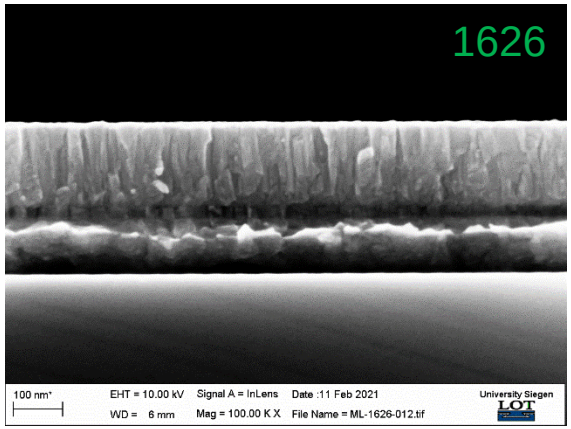
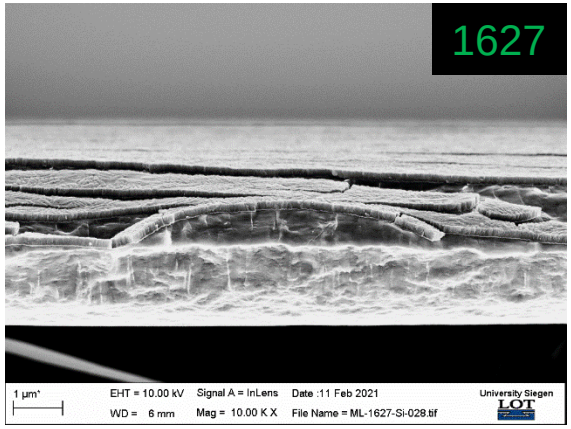
QPR Preparation

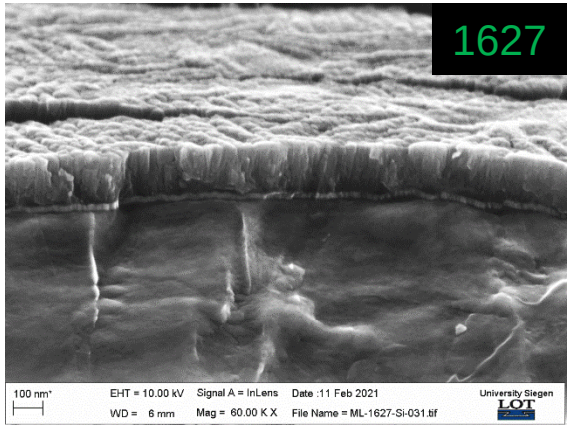
- New Baratron and Nb target installed
  - 6 preparation coatings completed
  - Results correlate well with previous QPR coating





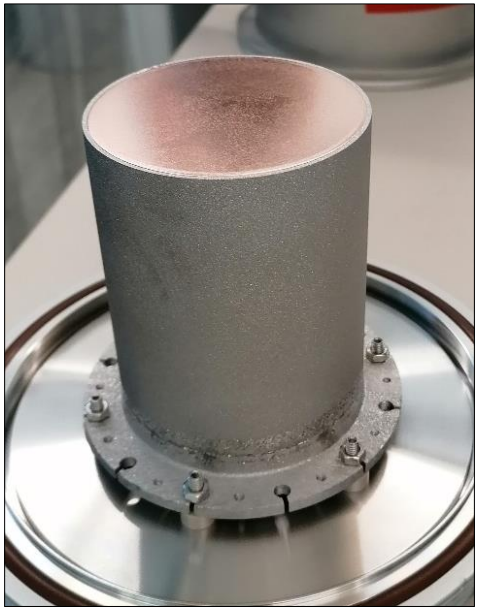


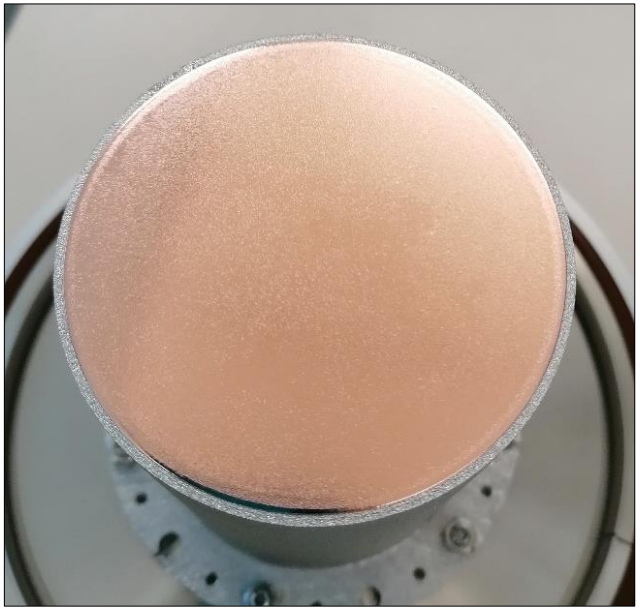




QPR Installation

- Edges looked good – No burrs
- Potential pitting seen in images – white spots
- Areas with larger Cu grains evident. Effects?





QPR Deposition

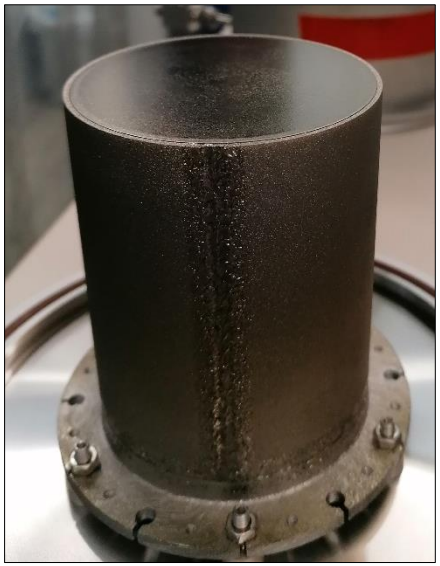
1. Heating at 670°C for 8 hours

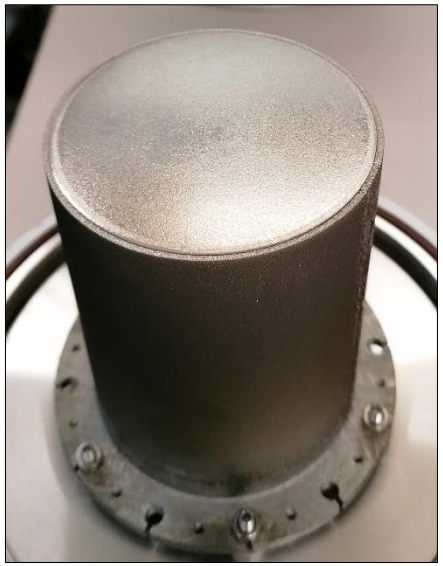
2. Hold at coating temp (180°C) for 4 hours (coating temp equal for all processes)

3. MF etching process – 10 mins

4. Target cleaning – 5 mins

5. Three step coating with 1 hour stabilisation between
   - 3.8µm HiPIMS Nb
   - 23/24nm AlN (“rocking”)
   - 180nm HiPIMS NbN (“rocking”)





Thanks for your Attention!

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QPR Deposition

Recipe

- HiPIMS Nb (~3.8µm)
  - Sample 1077 recipe
  - 400W (1000Hz, 120µs)
  - $8e^{-3}$mbar
- AlN (~24nm)
  - 3500W, $6e^{-3}$mbar, 100% N_2
  - $3x10^{o}$ pulse
- HiPIMS NbN (180nm)
  - Sample 1296 recipe (Highest H_{en})
  - 400W (1000Hz, 120µs)
  - $2.2e^{-2}$mbar, 10% N_2
  - $56x10^{o}$ pulses