

Alternative Pathways to High-Field Bi2212 Round Wire *... the sheath and the powder*

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Ag-Al v Ag-Mg sheathed Bi2212 wires

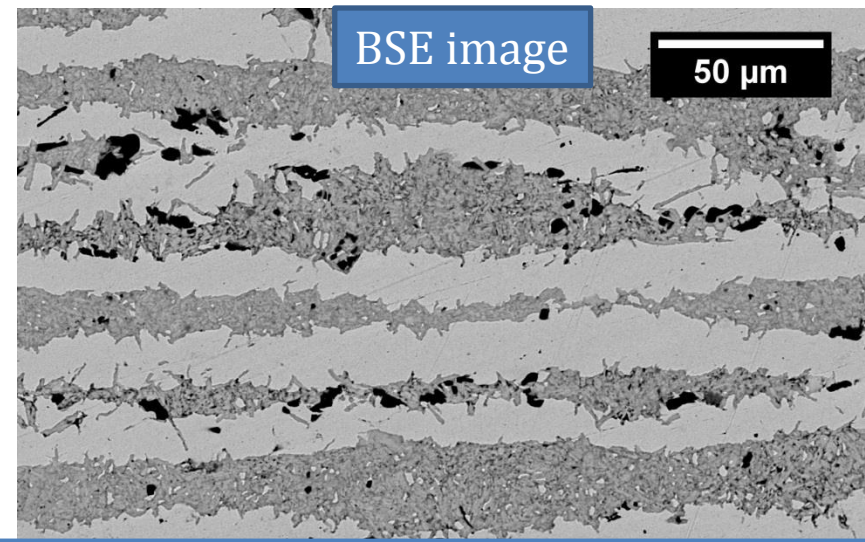
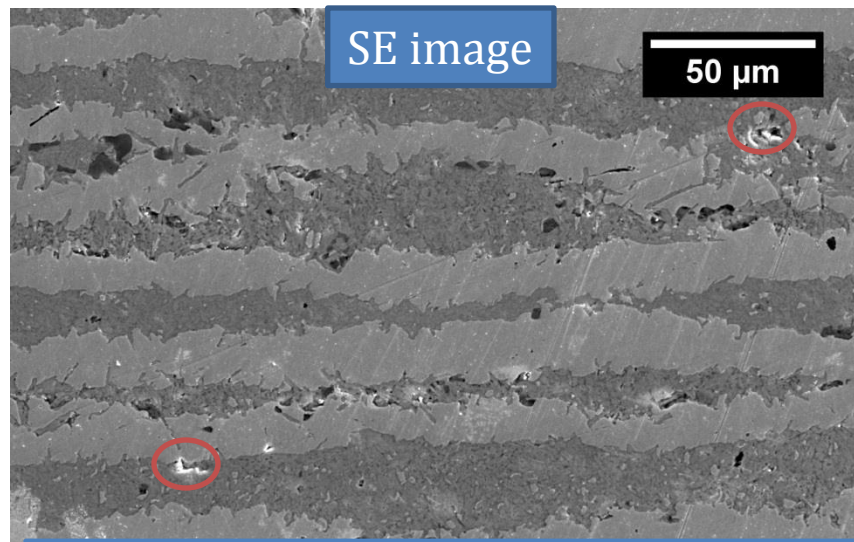
| Room temperature tensile test results for Bi2212 round wires | | | | | |
|--|------------|-----------|------------|------------|-------------|
| Samples type | Condition | E (GPa) | YS (MPa) | UTS (MPa) | EI % |
| Bi2212/Ag0.20Mg | Green wire | 50 | 70 | 134 | 18.00 |
| | PMP | 53 | 100 | 150 | 0.96 |
| Bi2212/Ag0.50Al | Green wire | 52 | 110 | 161 | 18.11 |
| | Oxidized | 63 | 130 | 147 | 0.52 |
| | PMP | 75 | 138 | 178 | 1.81 |
| Bi2212/Ag0.75Al | Green wire | 50 | 110 | 165 | 18.21 |
| | Oxidized | 57 | 130 | 138 | 0.51 |
| | PMP | 73 | 148 | 152 | 1.52 |
| Bi2212/Ag1.00Al | Green wire | 48 | 120 | 170 | 17.81 |
| | Oxidized | 65 | 136 | 150 | 0.95 |
| | PMP | 65 | 132 | 141 | 1.36 |
| Bi2212/Ag1.25Al | Green wire | 54 | 120 | 177 | 17.91 |
| | Oxidized | 69 | 120 | 140 | 0.98 |
| | PMP | 67 | 125 | 143 | 1.32 |

Kajbafvala et al., SUST **27** 095001 (15 pp) doi:10.1088/0953-2048/27/9/095001 (2014)

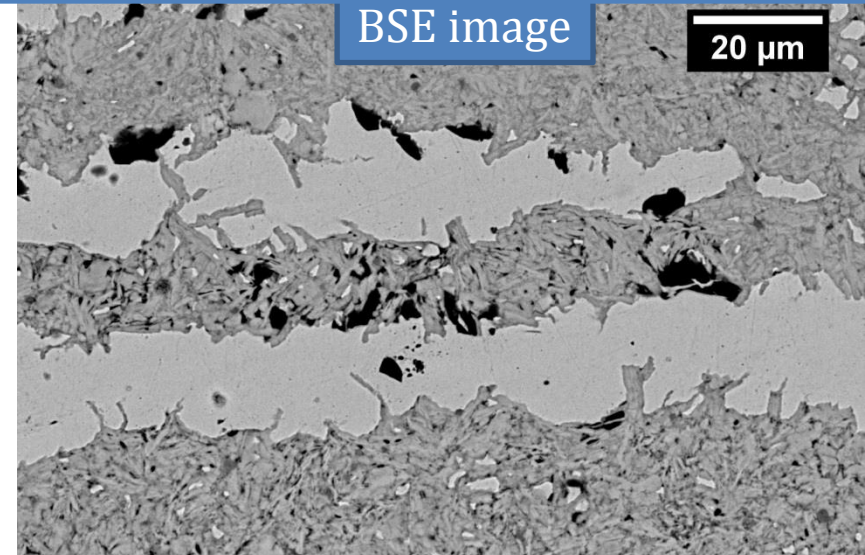
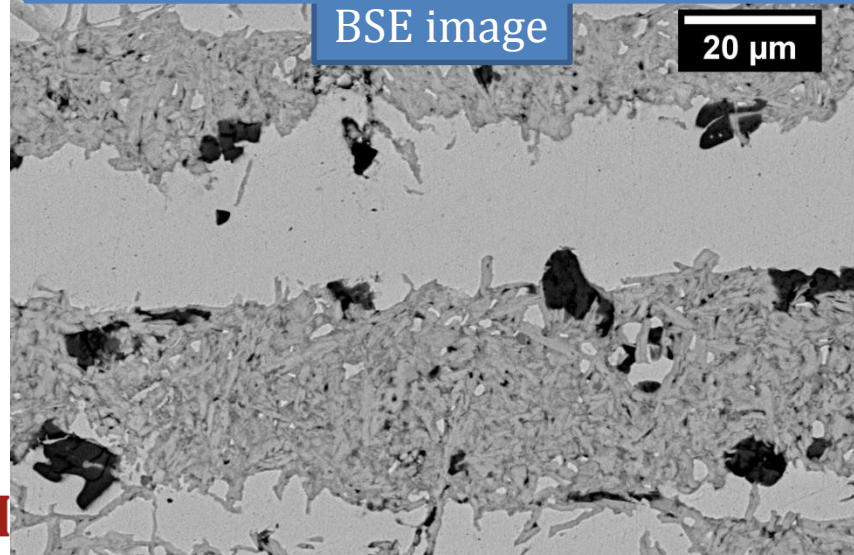
Or

Kajbafvala PhD thesis NCSU Dept of Materials Science & Engineering

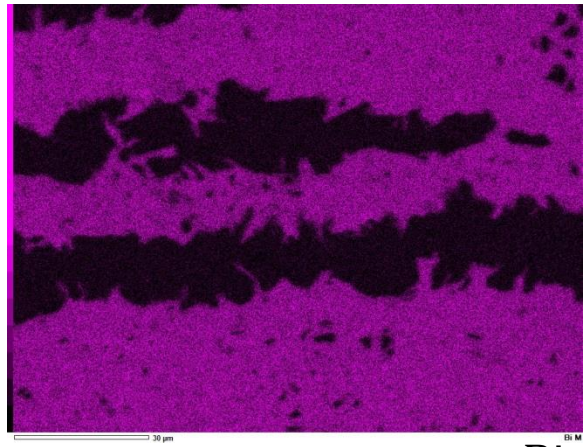
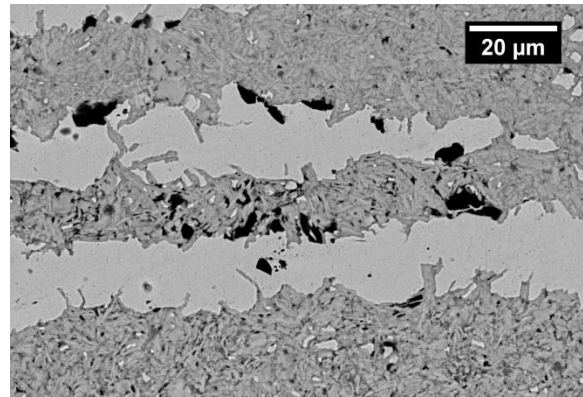
Metallic precursors results in low-porosity



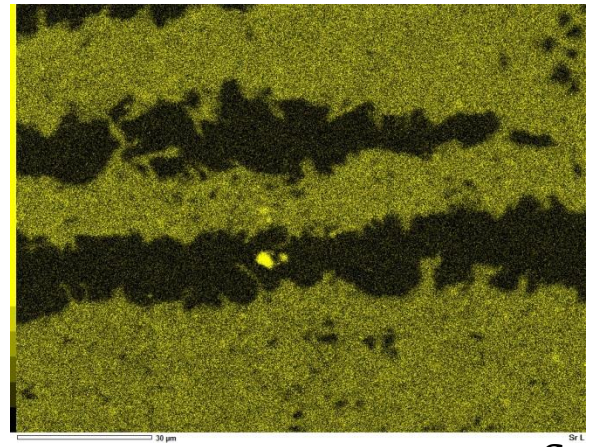
Filaments are dense with few porous regions. Impurity grains are preferably at the filament/Ag interface, but with non-porous interface with Bi2212 grains.



EDS map of metallic precursor wire

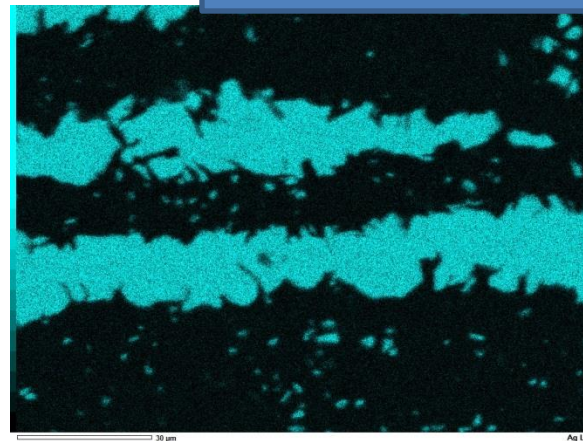


Bi

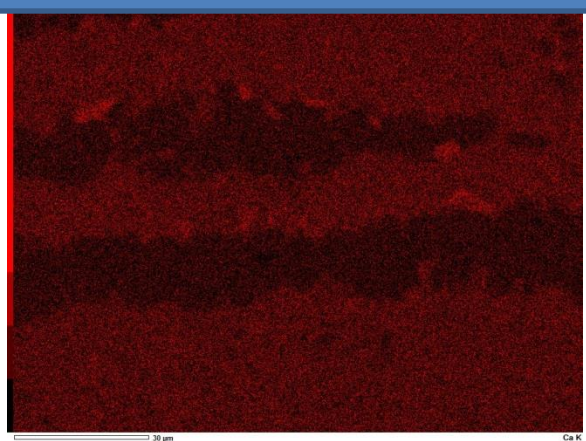


Sr

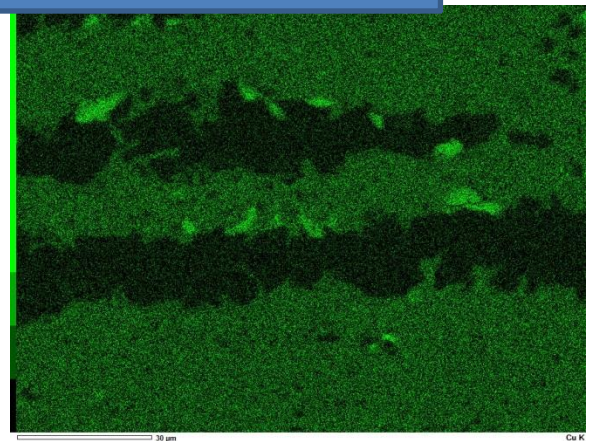
Dark particles are AEC particles, preferably at filament/Ag interface



Ag



Ca



Cu