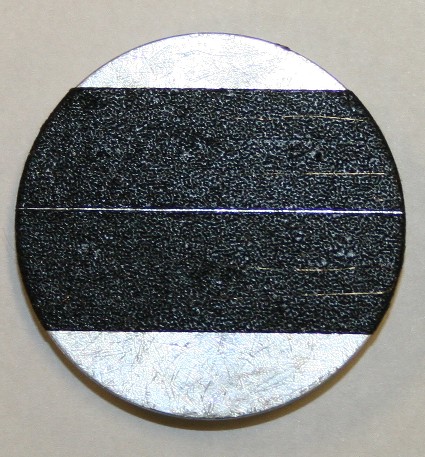
Hall D Wire Characterization

Samples F6-1 & F6-2

1. **Sample preparation:** ultrasonic cleaning in DI water for 45 minutes.
2. **Sample installation:** for SEM inspection wires were installed on a sample holder (diameter=36 mm) on 2 stripes of conductive carbon tape, 2 fragment of each sample per stripe (nomenclature: F6-1a, F6-1b and F6-2a, F6-2b).



Pic1. Typical sample installation.

1. **Wire inspection:**
2. Each wire fragment was examined along its length (beginning at approximately 5mm from the sample holder edge and ending ~5mm before the opposite edge) at magnification of ~x600, at fast scan rate.
3. Images at designated magnifications (x300, x500, x800, x1000) were taken randomly along the sample length;
4. Images for the ovality measurements were taken at 1000x magnification in three points of each wire fragment: in the middle (approximately) and close to both ends;
5. Measurements of wire diameter, as visible on the images, were done using the Quartz PCI Image Management System, 3 measurements per image;
6. Additional images at various magnifications were taken at the points of interest (variations in sample topography, contaminated areas, etc.)
7. EDS analysis was performed on the most typical points of interest.

**Sample F6-1 A, B**

I. Images at designated magnifications

|  |  |
| --- | --- |
| F6-1A-1 | F6-1B-1 |
| F6-1a x300 1_q00.jpg | F6-1b x300 1_q00.jpg |
| Magnification: 300x | Magnification: 300x |
|  |  |
|  |  |
|  |  |
| F6-1A-2 | F6-1B-2 |
| F6-1a x500 6_q00.jpg | F6-1b x500 4_q00.jpg |
| Magnification: 500x | Magnification: 500x |
|  |  |
|  |  |

|  |  |
| --- | --- |
| F6-1A-3 | F6-1B-3 |
| F6-1a x800 9_q00.jpg | F6-1b x800 6_q00.jpg |
| Magnification: 800x | Magnification: 800x |
|  |  |
|  |  |
|  |  |
| F6-1A-4 | F6-1B-4 |
| F6-1a x1000 11_q00.jpg | F6-1b x1000 9_q00.jpg |
| Magnification: 1000x | Magnification: 1000x |
|  |  |

II. Ovality Measurements

|  |  |
| --- | --- |
| F6-1A-1o | F6-1B-1o |
| F6-1a x1000 1o.JPG | F6-1b x1000 1o.JPG |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
| F6-1A-2o | F6-1B-2o |
| F6-1a x1000 2o.JPG | F6-1b x1000 2o.JPG |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
| F6-1A-3o | F6-1B-3o |
| F6-1a x1000 3o.JPG | F6-1b x1000 3o.JPG |
| Magnification: 1000x | Magnification: 1000x |

III. Points of Interest

|  |  |
| --- | --- |
| F6-1A-14 | F6-1A-14 Environmental contamination |
| F6-1a x8000 14_q00.jpg | F6-1a 14.bmp |
| Magnification: 8000x | EDS Analysis. Surface contamination.. |
|  |  |
| F6-1A-4 Minor surface damage. | F6-1A-5 Surface damage magnified.. |
| F6-1a x6000 4_q00.jpg | F6-1a x15000 5_q00.jpg |
| Magnification: 6000x | Magnification: 15000x |
|  |  |
| F6-1A-8 Surface damage | F6-1A-10 Surface damage and contamination |
| F6-1a x10000 8_q00.jpg | F6-1a x5000 10_q00.jpg |
| Magnification: 10000x | Magnification: 5010x |

|  |  |
| --- | --- |
| F6-1A-7 Surface damage and contamination | F6-1A-12 Surface damage and contamination |
| F6-1a x6000 7_q00.jpg | F6-1a x6000 12_q00.jpg |
| Magnification: 6000x | Magnification: 6000x |
|  |  |
| F6-1A-3 Surface damage. High mag | F6-1B-3 Surface damage and contamination |
| F6-1a x10000 3_q00.jpg | F6-1b x1500 3_q00.jpg |
| Magnification: 10000x | Magnification: 1500x |
|  |  |
| F6-1B-8 Surface contamination | F6-1B-8 Surface contamination |
| F6-1b x5000 6_q00.jpg | F6-1b 8.bmp |
| Magnification: 5010x | EDS Analysis. Surface contamination. Iron oxide particles? |

**Sample F6-2 A, B**

Images at designated magnifications

|  |  |
| --- | --- |
| F6-2A-1 | F6-2B-1 |
| F6-2a x300 1_q00.jpg | F6-2b x300 1_q00.jpg |
| Magnification: 300x | Magnification: 300x |
|  |  |
|  |  |
|  |  |
| F6-2A-2 | F6-2B-2 |
| F6-2a x500 4_q00.jpg | F6-2b x500 3_q00.jpg |
| Magnification: 500x | Magnification: 500x |
|  |  |
|  |  |

|  |  |
| --- | --- |
| F6-2A-3 | F6-2B-3 |
| F6-2a x800 5_q00.jpg | F6-2b x800 8_q00.jpg |
| Magnification: 800x | Magnification: 800x |
|  |  |
|  |  |
|  |  |
| F6-2A-4 | F6-2B-4 |
| F6-2a x1000 8_q00.jpg | F6-2b x1000 6_q00.jpg |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
|  |  |

II. Ovality Measurements

|  |  |
| --- | --- |
| F6-2A-1o | F6-2B-1o |
| F6-2a x1000 1.JPG | F6-2b x1000 1o.JPG |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
| F6-2A-2o | F6-2B-2o |
| F6-2a x1000 2o.JPG | F6-2b x1000 2o.JPG |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
| F6-2A-3o | F6-2B-3o |
| F6-2a x1000 3o.JPG | Sorry, image was not saved properly. |
| Magnification: 1000x | Magnification: 1000x |

III. Points of Interest

|  |  |
| --- | --- |
| F6-2A-7 Surface contamination. | F6-2A-7 Surface contamination. |
| F6-2a x1800 7_q00.jpg | F6-2a 7env cont.bmp |
| Magnification: 1800x | EDS Analysis. Surface contamination. Environmental. |
|  |  |
| F6-2A-2 Minor surface damage. | F6-2A-9 Scratch.. |
| F6-2a x6000 2_q00.jpg | F6-2a x15000 9_q00.jpg |
| Magnification: 6000x | Magnification: 15000x |
|  |  |
| F6-2B-4 Surface contamination. | F6-2B-4 Surface damage. |
| F6-2b x6000 4_q00.jpg | F6-2b x7000 5_q00.jpg |
| Magnification: 6000x | Magnification: 7000x |