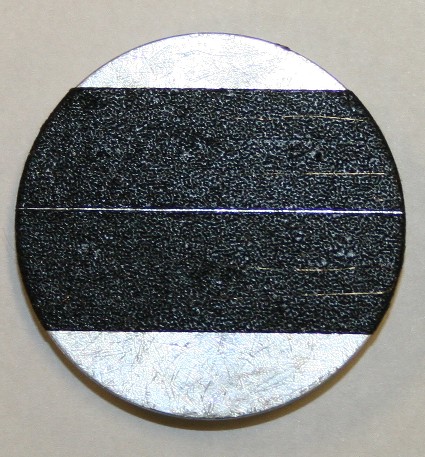
Hall D Wire Characterization

Samples F8-1 & F8-2

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: F5-1a, F5-1b and F5-2a, F5-2b).



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 F5-1 A, B**

I. Images at designated magnifications

|  |  |
| --- | --- |
| F8-1A-1 | F8-1B-1 |
| F8-1a x300_q00.jpg | F8-1b x300_q00.jpg |
| Magnification: 300x | Magnification: 300x |
|  |  |
|  |  |
|  |  |
| F8-1A-2 | F8-1B-2 |
| F8-1a x500_q00.jpg | F8-1b x500 3_q00.jpg |
| Magnification: 500x | Magnification: 500x |
|  |  |
|  |  |

|  |  |
| --- | --- |
| F8-1A-3 | F8-1B-3 |
| F8-1a x800 7_q00.jpg | F8-1b x800 4_q00.jpg |
| Magnification: 800x | Magnification: 800x |
|  |  |
|  |  |
|  |  |
| F8-1A-4 | F8-1B-4 |
| F8-1a x1000 5_q00.jpg | F8-1b x1000 11_q00.jpg |
| Magnification: 1000x | Magnification: 1000x |
|  |  |

II. Ovality Measurements

|  |  |
| --- | --- |
| F8-1A-1o | F8-1B-1o |
| F8-1a x1000 1o.JPG | F8-1b x1000 1o.JPG |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
| F8-1A-2o | F8-1B-2o |
| F8-1a x1000 2o.JPG | F8-1b x1000 2o.JPG |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
| F8-1A-3o | F8-1B-3o |
| F8-1a x1000 3o.JPG | F8-1b x1000 3o.JPG |
| Magnification: 1000x | Magnification: 1000x |

III. Points of Interest

|  |  |
| --- | --- |
| F8-1A-6 | F8-1A-6 |
| F8-1a x6980 6_q00.jpg | F8-1a 6 scratch.bmp |
| Magnification: 6980x | EDS Analysis. Scratch. No Cu found. |
|  |  |
| F8-1A-4 Minor scratches. | F8-1A-8 Scratches and contamination. |
| F8-1a x10000 4_q00.jpg | F8-1a x10000 8_q00.jpg |
| Magnification: 11000x | Magnification: 10000x |
|  |  |
| F8-1B-5 Environmental contamination | F8-1B-5 Environmental contamination |
| F8-1b x5990 5_q00.jpg | F8-1b 5 typical cont.bmp |
| Magnification: 5990x | EDS Analysis. Typical surface contamination |

|  |  |
| --- | --- |
| F8-1B-10 Surface damage | F8-1B-7 Surface damage |
| F8-1b x3500 10_q00.jpg | F8-1b x6000 7_q00.jpg |
| Magnification: 3500x | Magnification: 6000x |
|  |  |
| F8-1B-7 Surface damage. High mag | F8-1B-7 Surface damage. High mag |
| F8-1b x30000 9_q00.jpg | F8-1b 9 surf damage.bmp |
| Magnification: 30000x | EDS Analysis. Surface damage. No Cu found. |

**Note:**

1. No traces of Cu within the damaged area were indicated by the EDS analysis (detection limit ~1%).

**Sample F8-2 A, B**

Images at designated magnifications

|  |  |
| --- | --- |
| F8-2A-1 | F8-2B-1 |
| F8-2a x300 1_q00.jpg | F8-2b x300 1_q00.jpg |
| Magnification: 300x | Magnification: 300x |
|  |  |
|  |  |
|  |  |
| F8-2A-2 | F8-2B-2 |
| F8-2a x500 2_q00.jpg | F8-2b x500 2_q00.jpg |
| Magnification: 500x | Magnification: 500x |
|  |  |
|  |  |

|  |  |
| --- | --- |
| F8-2A-3 | F8-2B-3 |
| F8-2a x800 3_q00.jpg | F8-2b x800 5_q00.jpg |
| Magnification: 800x | Magnification: 800x |
|  |  |
|  |  |
|  |  |
| F8-2A-4 | F8-2B-4 |
| F8-2a x1000 6_q00.jpg | F8-2b x1000 9_q00.jpg |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
|  |  |

II. Ovality Measurements

|  |  |
| --- | --- |
| F8-2A-1o | F8-2B-1o |
| F8-2a x1000 1o.JPG | F8-2b x1000 1o.JPG |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
| F8-2A-2o | F8-2B-2o |
| F8-2a x1000 2o.JPG | F8-2b x1000 2o.JPG |
| Magnification: 1000x | Magnification: 1000x |
|  |  |
| F8-2A-3o | F8-2B-3o |
| F8-2a x1000 3o.JPG | F8-2b x1000 3o.JPG |
| Magnification: 1000x | Magnification: 1000x |

III. Points of Interest

|  |  |
| --- | --- |
| F5-2A-5 Scratch and contamination. | F8-2A-8 Surface damage. |
| F8-2a x9020 5_q00.jpg | F8-2a x10000 8_q00.jpg |
| Magnification: 9020x | Magnification: 10000x |
|  |  |
| F8-2B-6 Surface damage. | F8-2B-4 Surface damage. |
| F8-2b x2500 6_q00.jpg | F8-2b x5000 4_q00.jpg |
| Magnification: 2500x | EDS Analysis. Surface damage. No Cu. |
|  |  |
| F8-2B-7 Details of surface structure. |  |
| F8-2b x4500 7_q00.jpg |  |
| Magnification: 4500x |  |