

## APPLICATION NOTE | Reduce Charging

### Non-Conductive samples

Anyone performing work on Sapphire samples or polymer samples knows the frustration of drift caused by charging. The area of interest may be milled by accident if the drift is great enough. Coating the sample with a conductive AuPd coating does alleviate the drift. However, once that conductive coating is cut by the beam and exposes the non-conductive material issues arise.

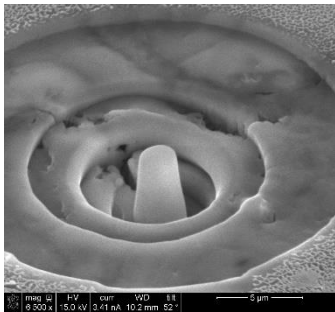


Image of Pillar milled in a non-conductive cement sample which typically charges and prevents good pillar formation.

Here we describe a new method that allows the charge to be dissipated more easily. This new method is actually an old SIMS method for charge reduction.

The method involves placing a conductive foil or sheet with an aperture or several apertures in it to serve as a mask. The conductive mask makes the conductive path to ground shorter and more secure than just a simple coating.

The mask can be as simple as Al foil with an aperture cut in the center or more complex such as a Cu foil with many perforations that is used in making TEM samples. If you are experiencing drift issues try this technique to see if it helps.

### New Sample Mounting Procedure

1. Place your sample on a stub using superglue.
2. If the sample is already coated with AuPd it should still work.
3. Place two thin strips of the double sided Carbon tape on the edges of the sample (the distance between the tape should match your mask).
4. Place your mask over the sample so that it adheres to the Carbon tape but exposes the area of interest.
5. If your sample was not previously AuPd coated you should coat it at this time.



Image of foil with aperture in the center to minimize charging. The sample was AuPd coated after the foil was placed on top.