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Imaging at Diamond I12-Jeep: Surviving the dust storm !

Monday 12 November 2018 15:15 (25 minutes)

The continuing development of ring artefacts in images is one of the problems that annoys X-ray tomography users the most, (perhaps next to the difficulty of coping with the large amounts of data) Considerable effort has been put into developing ways to use data despite the artefacts; including attempting to acquire data so as to avoid the bad parts of the detection system, and novel mathematical filters and processing of the data to retrieve the desired sample information. But, it would be better not to have these problems in the first place. Unfortunately, we find that putting the optical system into the X-ray beam seems to result in degradation products from X-ray interaction; with the optic mounts, mirrors, scintillators and anything included to try to protect the scintillators, getting all over the system and causing the ring-generating defects. For this workshop I will discuss each of these things, data acquistion strategy, reconstruction algorithms, and optics re-design – each of which is still not complete or perfect, in hope of exchanging ideas for improvements in each area.

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