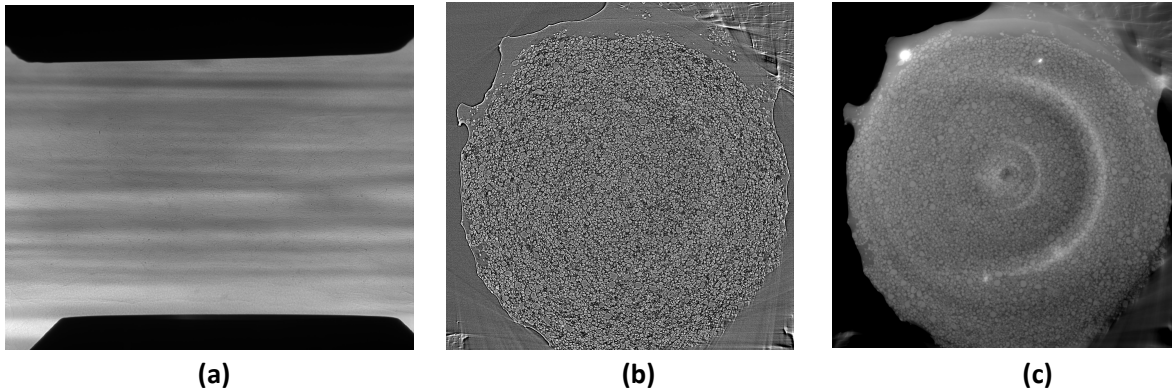# Problem SLS01: Broad ring artifacts in phase retrieved datasets

| (a) | (b) | (c) |

Sample projection (a), gridrec reconstruction performed using the TOMCAT pipeline without (b) and with phase retrieval[1] (c)

Challenge:

Detection and quantification of grey level differences of ca. 1% in the electrode particles – Local tomography and broad ring artifacts are making this challenging task even more difficult. Standard solutions used at the TOMCAT beamline (e.g. constant padding) are not sufficient in the phase retrieved case, if small grey level differences need to be reliably detected. A more sophisticated flat-field correction might help for the ring artefact problem.

Previous work / relevant literature:

(1) J. of Microscopy, Vol 206(1), 33-40, 2001

Example dataset :

Raw data and tomoPy script location to generate the reconstruction in figure:

ftp://ftp.xray.aps.anl.gov/pub/tomo-databank/Lorentz/sls/sls_01/

Projection data details

Data File Name:	SLS_01.h5
Energy:	24.999 keV (monochromatic configuration)
Scan Range:	180 degrees
# tomo images:	1201
# flat images:	200 (100 before and 100 after the actual acquisition)
# dark images:	10
PixelSize:	0.65 micron
Sample-to-detector distance:	15 mm
Beamline:	TOMCAT