

## ***CURRENT STATUS AND FUTURE DEVELOPMENTS OF THE DIAMOND I13 TXM***

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**Summary:** The Diamond-Manchester I13-2 imaging branch operates a full-field TXM experiment which will be upgraded to a dedicated experimental endstation. We will present the current status and performance of the full-field TXM as well as the detailed upgrade plans.

### **1. INTRODUCTION**

The Diamond I13 beamline [1] is a 240 m long beamline with two dedicated endstations I13-1 and I13-2 dedicated to coherent imaging and full-field tomography, respectively. Here, we present the current status and future developments of the full-field transmission X-ray microscope [2] on the I13-2 Diamond-Manchester imaging branch.

### **2. EXPERIMENTAL LAYOUT**

The current setup is a provisional but fully working transmission X-ray microscope (TXM) setup integrated in the microtomography endstation. It achieves resolutions of 60 nm, limited by the X-ray optics, and it can operate in absorption or Zernike phase contrast modes.

A dedicated setup for the TXM will be installed in the beamline in the near future. This upgrade will allow using a detector working distance of up to 13 m, yielding a high X-ray magnification with large FZP working distances allowing an easy integration of in-situ sample environments and facilitating user operation.

### **3. RESULTS**

In addition to the technical details, we will present current data to demonstrate the capabilities of the experiment.

### **References**

[1] Z. D. Pešić *et al* *J. Phys.: Conf. Ser.* **425** (2013), 182003

[2] J. Vila-Comamala, J. Bosgra, D. S. Eastwood, U. H. Wagner, A. J. Bodey, M. Garcia-Fernandez, C. David, C. Rau. *AIP Conference Proceedings* **1696** (2016), 020036