

The coherent applications instrument MID at European XFEL – commissioning and first user experiments

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The scope of the Materials Imaging and Dynamics (MID) instrument is material science using the unprecedented coherent properties of the X-ray beam of European XFEL [1]. Several X-ray scattering and imaging techniques are foreseen, for example Coherent Diffraction Imaging (CDI), X-ray Photon Correlation Spectroscopy (XPCS), and X-ray Cross Correlation Analysis (XCCA).

First lasing of the MID undulator was achieved in May 2018, followed by the first beam in the MID optics and experimental hutch in October and December 2018, respectively. From March to June 2019, the first early user experiments were conducted, using techniques such as X-ray holography, XPCS or XCCA.

We will present the concept and setup of the MID instrument, which was designed to offer many different experimental configurations and enable high quality coherent X-ray experiments. We outline the commissioning of the instrument during the first half of 2019 and show results of the commissioning and early user experiments conducted at MID.

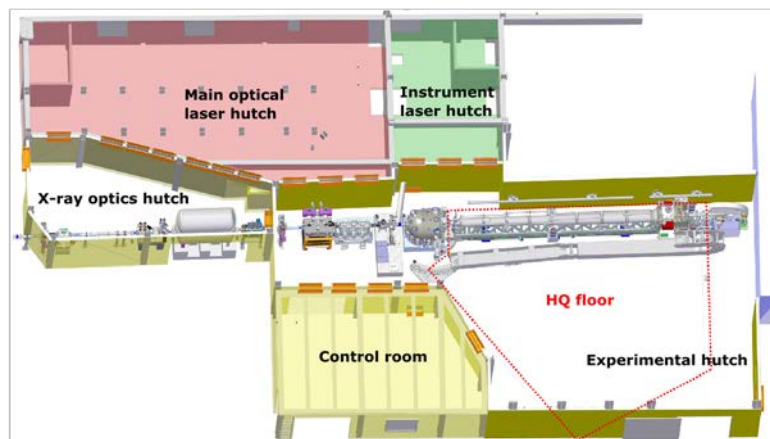


Figure 1: Top view of the MID instrument and its enclosure.

References

[1] - Madsen, A., Roth, T., Ansaldi, G., & Hallmann, J. (2013). Technical design report: Scientific instrument MID (No. DESY-2013-00872). European XFEL.