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Radiation damage around ESRF X-ray pinholes

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After two years of nominal ESRF-EBS operation heavy radiation damage could be observed around the in-air X-ray pinhole setups of the storage ring.

The main origin of this rapid degradation was identified to be (X-ray fluorescence) radiation emitted from the copper attenuator placed in front of the pinhole.

A newly designed attenuator version installed since January 2023 will hopefully improve the situation. Further, some white powder deposit in the vicinity of the pinholes reveals to be SiO2. However, the origin of this SiO2 powder which is known to sometimes block the pinholes remains mysterious.

Summary

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