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Adaption of metallic magnetic calorimeters to x-ray spectroscopy at ion storage ring experiments

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Metallic magnetic calorimeters (MMC) for x-ray spectroscopy combine an excellent energy resolution comparable to crystal spectrometers with a broad bandwidth acceptance, thus providing new possibilities for precision measurement. At HI-Jena/GSI we have employed two MMCs each based on an 8x8 pixel array in a physics production run at the ion storage ring CRYRING@ESR. The digital readout of the systems was fully integrated into the heterogenous detector/sensor environment of the storage ring enabling to record coincidences between the MMC photon detectors and down charged ions as well as to synchronize the data accumulation with the operation mode of the storage ring. A record resolution for the detected photons of about 90 eV has been reached over a broad spectral range from 5 keV to above 100 keV. We will report on the details of this experiment as well as on ongoing activities.

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