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Combining x-ray emission and x-ray Raman spectroscopy at the scientific instrument FXE of the European XFEL

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X-ray emission and x-ray Raman scattering spectroscopy are powerful methods to study in situ the local electronic and atomic structure of high and low Z elements, respectively, in bulk matter. A combination of these techniques for time-resolved experiments should deliver a deeper understanding of phenomena such as e.g. hydration shell dynamics or the correlation between spin and structural dynamics. The scientific instrument FXE at the European XFEL provides unique experimental capabilities for simultaneous Kß and valence to core emission, as well as x-ray Raman scattering spectroscopy, on picosecond to femtosecond timescales using a wavelength dispersive von Hamos spectrometer together with a 6-element Johann-type spectrometer. We discuss the current status of the setup and present a short outlook on future experiments.

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