# FEMTOSECOND LASER-INDUCED X-RAY PULSE EMISSION FROM AQUEOUS SOLUTIONS: ULTRA-SHORT X-RAY PULSES FOR TIME-RESOLVED X-RAY STUDIES ON MOLECULAR STRUCTURES IN EXCITED STATES

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Spectroscopically-monochromatic and -broad ultra-short X-ray pulses emission can be induced by irradiating focused femtosecond laser pulses onto metal tapes and aqueous solutions in air. Interaction mechanisms between intense femtosecond laser pulses (780 nm, 160 fs, 1 kHz, 1 mJ/pulse, PW/cm2) and aqueous solutions will be discussed on the basis of results of X-ray emission spectroscopy and X-ray intensity measurements by changing parameters of laser pulses such as intensity, pulse width, chirp, and polarization and those of solutions such as solute concentration, solute species, and additives. Trials for time-resolved X-ray diffraction and X-ray absorption fine structure measurements will be also introduced.