

# Probing ultra-short-lived excited states in Be-like Carbon at the ESR

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We propose to measure the lifetime of short-lived excited states in Be-like Carbon by a pump-probe experiment. Utilizing two synchronized and delayed Femtosecond XUV pulses allows accessing these lifetimes with Femtosecond precision for the first time. These measurements will provide sensitive tests of state-of-the-art atomic structure calculations beyond the capabilities of established methods and challenge recent calculations. In future, X-ray transitions at sub-fs dynamics will be accessible by employing this approach at HESR.

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