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Simulation studies for attosecond soft X-ray FEL pulse generation at PAL-XFEL

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At Pohang Accelerator Laboratory X-ray Free-Electron Laser (PAL-XFEL), the scheme for generating attosecond XFEL pulse at soft X-ray undulator line is developing. Enhanced Self-Amplified Spontaneous Emission (E-SASE) method with external laser pulse is adopted to induce the current spike in the electron beam and generate attosecond XFEL pulse. E-SASE section consists of the wiggler and the magnetic chicane. When the electron beam passes through the wiggler with the external laser pulse, the energy modulation can be induced in the electron beam. After that, the induced energy modulation can be converted to the density modulation, which is called the current spike, when the electron beam passes through the dispersive section such as magnetic chicane. By using the current spike in the electron beam, attosecond XFEL pulse can be generated at the undulator section. In this presentation, the layout for generating attosecond XFEL pulse at PAL-XFEL will be introduced. Also, the simulation results about generation of current spike and attosecond XFEL pulse will be discussed.

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Footnotes

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Yes

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