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Consideration of HB-SASE and HP-SASE at the SXFEL

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X-ray free-electron laser is developing towards the sources with ultra-high intensity and ultra-short duration. The SXFEL facility is operated to generate the soft x-ray FEL with sub-GW-level peak power and nearly 100 fs pulse duration. It also has taken into consideration to shorten the pulse duration and increase the peak power. In this contribution, we analyzed the schemes possibility of high brightness SASE and high power SASE, from which high power SASE based on fresh-slice technique utilizing a dechirper is more feasible at the SXFEL. The schematic design and FEL simulation is presented, which demonstrates that an FEL pulse with peak power of 10 GW-level and pulse duration of 10s fs-level is possible to be generated.

Footnotes

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Primary author: LIU, Tao (Shanghai Advanced Research Institute)

Co-authors: LIU, Bo (Shanghai Advanced Research Institute); FENG, Chao (Shanghai Advanced Research Institute); ZHANG, Kaiqing (Shanghai Synchrotron Radiation Facility); GAO, Zhangfeng (Shanghai Synchrotron Radiation Facility); QI, Zheng (Shanghai Advanced Research Institute)

Presenters: LIU, Tao (Shanghai Advanced Research Institute); GAO, Zhangfeng (Shanghai Synchrotron Radiation Facility)

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