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The cavity-based XFEL proposal at SHINE:

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Cavity-based X-ray free-electron laser (XFEL) is promising to produce fully coherent pulses with the bandwidth of a few meV and very stable intensity, while the currently existing self-amplified spontaneous emission (SASE) XFEL is capable of generating ultra-short pulses with chaotic spectra. In general, cavity-based XFEL can provide spectral brightness three orders of magnitude higher than that of the SASE mode, thereby opening a new door for cutting-edge scientific research. With the development of superconducting MHz repetition rate XFEL facilities such as FLASH, European-XFEL, LCLS-II and SHINE, the cavity-based XFEL operation becomes more and more achievable. In this paper, Megahertz cavity enhanced x-ray Generation (MING) is proposed, on the basis of China's first hard XFEL facility SHINE, i.e., MING@SHINE.

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Footnotes

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Yes

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