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## Proposed FEL Schemes and their Performance for the Soft X-Ray Free Electron Laser (SXL) at the MAX IV Laboratory

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The existing MAX IV 3 GeV linac could drive, with minor improvements, a soft X-ray Free Electron Laser and the aim of the SXL project has been so far to deliver a conceptual design of such a facility in the 1–5 nm wavelength range.

The project was initiated by a group of Swedish users of FEL radiation and the design work was supported by the Knut and Alice Wallenberg foundation and by several Swedish universities and organizations (Stockholm, Uppsala, KTH Royal Institute of Technology, Stockholm-Uppsala FEL center, MAX IV laboratory and Lund University).

In this paper we will focus on the baseline FEL performance based on two different accelerator operation modes (medium and short pulses) and give some hints of future developments after the first phase of the project such as 2 color/2pulses and HB-SASE.

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