

Overview of the SwissFEL photocathode lasers and cathode R&D

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SwissFEL, the Swiss Free Electron Laser facility in user operation since 2019 is a 700m long X-ray FEL delivering femtosecond soft and hard X-ray photons in two parallel beamlines, respectively Athos and Aramis. In order to achieve low emittance and short electron bunches, SwissFEL uses a photo-injector. In that context, the photocathode lasers facility is a crucial subsystem that must seed the photo-electron gun with high-end performance, shaping capabilities as well as long term stability and reliability. In parallel, we produced and use CsTe cathode with high QE and long lifetime. The talk will lead you through the key steps as well as the state of the art technological and optical solutions that have been developed and implemented to build the photocathode lasers facility and the cathode.

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