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【287】 High Gradient Photoguns for a Potential Upgrade to the SwissFEL

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In the aim of boosting the performance of the Swiss Free-Electron Laser (SwissFEL), two new high gradient radiofrequency photo-emission electron sources are under development as part of an international collaboration between Paul Scherrer Institut (PSI) and INFN Frascati. These electron sources aim to increase the cathode electric field through the use of higher frequencies and shorter filling times, achieved through novel RF designs. In this work, we present the design and first high power tests of these new electron sources at PSI and illustrate how they could enhance the performance of SwissFEL.

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