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PAL-XFEL S-band Linac

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PAL-XFEL is Korea's first, and the world's third, hard X-ray free-electron laser facility. PAL-XFEL is based on a 10-GeV S-band normal conducting linac consisting of 170 units of the 3-m long S-band accelerating structure, 46 units of the 80 MW S-band klystron, 41 units of S-band energy doubler, one X-band klystron, and three magnetic bunch compressor chicanes. A photo-cathode RF gun is used as a high brightness electron beam source. The e-beam is accelerated and compressed to a 3-kA or higher current beam with the bunch charge of 200 pC and at 60 Hz. A state-of-the-art design of klystron modulator and a reference timing system enables a very stable electron beam with an energy jitter of below 0.015% and an arrival time jitter of better than 15 fs.

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