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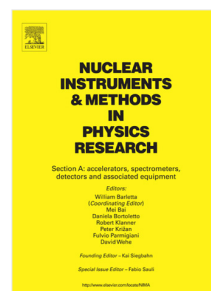
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First saturation of 14.5 keV free electron laser at PAL-XFEL

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Abstract

The hard X-ray free electron laser at the Pohang Accelerator Laboratory (PAL-XFEL) in the Republic of Korea achieved a saturation of free electron laser (FEL) beam at 14.5 keV with an unprecedented intensity of $2.8E+11$ photons per pulse. Successfully maintaining a very small emittance electron beam along the 700-m long linac, maximizing the spectral overlap of undulator radiation along the undulator line by the undulator radiation spectrum analysis, and optimal matching between the electron beam and photon beam through the 100-m long undulator line have allowed saturation and reliable operation of a 14.5 keV FEL beam.

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