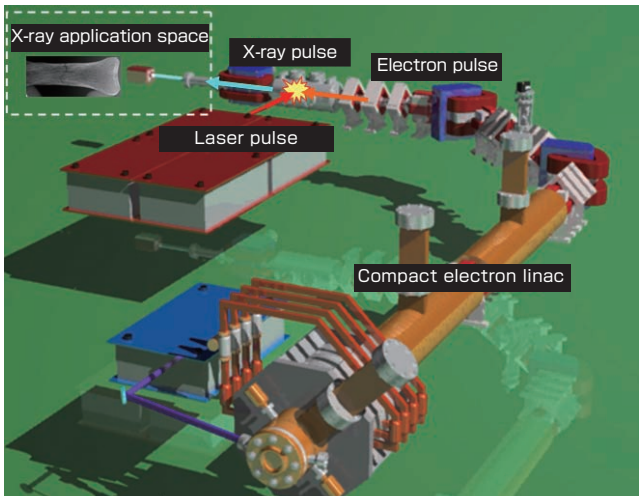
Development of linac based X-ray source via laser Compton scattering

Expansion to medical applications using quasi-monochromatic X-ray

Short pulses of quasi-monochromatic X-ray in 10–40 keV have been generated via the laser Compton scattering (LCS) of an ultra-short laser pulse with a high density electron pulse. The LCS hard X-ray source consists of a compact S-band 40 MeV linac and a Ti:sapphire laser system. It has been developed at AIST in order to be applied to medical uses. The refraction contrast imaging of a biological specimen has been successfully demonstrated with the LCS hard X-ray. The LCS X-ray source will be a powerful tool for advanced medical diagnosis.



Laser Compton scattering X-ray source

Ryunosuke Kuroda

Research Institute of Instrumentation Frontier

ryu-kuroda@aist.go.jp

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