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# Conceptual design of a compact THz radiation source

The Siam Photon Source (SPS) in Thailand has been in operation for synchrotron radiation users since 2003. Since the light obtained from the synchrotron light source is the high-intensity radiation in the range from the infrared to high-energy X-rays, it has great attention in many areas of scientific research and industrial development. However, a wide variety of applications covering terahertz (THz) region needs to be fulfilled. The THz region covering the frequency range from 0.1 to 10 THz is a rich zone for various fields of research and industrial applications. Therefore, a compact accelerator based free-electron laser (FEL) with providing an intense THz radiation is particularly interesting. A high-power THz radiation source needs to be studied and developed to achieve the intense THz radiation at tunable frequencies between 0.5 THz and 5.0 THz, with a peak power of several megawatts (MWs) and narrow bandwidth. Design for high-power THz radiation source will be described and detailed in this paper.

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