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Infrared radiation from bending magnet edges in an electron storage ring

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The infrared radiation emitted by electrons entering or exiting a storage ring bending magnet, which is termed “edge” radiation, is computed. Preliminary measurements at a wavelength of one micron are in agreement with the calculations. A comparison is made with the infrared synchrotron radiation emitted from the body of a bending magnet for wavelengths of one to one-thousand microns. The flux of the edge radiation is lower than that of the synchrotron radiation for the shorter wavelengths studied, and greater for the longer wavelengths. However, the brightness of the edge radiation is higher for all of the wavelengths studied. This suggests that edge radiation may be a promising infrared radiation source.