

**Generation of THz radiation with the use of Vortices
Located in Josephson ring.**

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Today, novel technologies are emerging from electronic devices that become smaller and smaller. We have studied tiny metal superconducting rings separated by an insulator and forming annular Josephson junction. At low temperature, in superconducting state the current generates Josephson vortices. We have created such fluxons experimentally and have theoretically estimated the probability of their formation. The experiment and theory are in perfect agreement. These vortices may generate electromagnetic radiation with terahertz frequencies. We describe simple structures which can work as generators of such radiation. With the use of the proposed generators many modern day problems may be tackled, from detecting of cancer to security imaging with continuous scanning.