## **Channeling 2018**



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## Electrostatic Cumulation of High-Current Electron Beams for Terahertz Sources

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The electrostatic cumulation of current density in relativistic vacuum diodes with ring-type cathodes is described theoretically and confirmed experimentally. The distinctive feature of the suggested cumulation mechanism is a very low energy spread of electrons. As a result of electrostatic cumulation, a thin relativistic electron beam with a current density of 1 kA/mm2 can be formed. This quantity exceeds a typical current density in high-current Cherenkov sources for an order of magnitude. Such a beam can be used as an active medium in high-power terahertz sources.

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