

than that of ordinary radiation. This implies that synchronizing the Josephson junctions is effective in improving the emission power, as previously expected. A radiated power of up to 30 μW was obtained from this new type of excitation. Finally, we demonstrate experimentally the possibility of high-power THz radiation sources from superconductors. This rapid improvement of intensity encourages us to promote the development of THz technology based on high-temperature superconducting intrinsic Josephson junctions.

Acknowledgments

This work has been performed in close collaboration with Dr. Wai -K. Kwok and his group (especially Dr. U. Welp) at the Argonne National Laboratory. It was supported by the Strategic Initiative (A), Univ. of Tsukuba, and by a Grant-in-Aid for JSPS Fellows. The authors thank Prof. M. Tachiki, Prof. T. Hattori at the University of Tsukuba, Prof. A. Irie at the Utsunomiya University, and Prof. L. Ozyuzer at the Izmir Institute of Technology for helpful discussions. We also thank Prof. Y. Ootuka at the University of Tsukuba for his advice and the use of his photolithography facility.