

- Breakthrough for developing revolutionary electronic devices with topological insulators -

A research group led by Professor Takashi Takahashi at WPI Advanced Institute for Materials Research, Tohoku University has succeeded in endowing the "massless" Dirac electrons in a topological insulator with a finite mass in a controllable manner. This work was collaborated with Associate Professor Takafumi Sato at Graduate School of Science, Tohoku University, and Associate Professor Kouji Segawa and Professor Yoichi Ando at the Institute of Scientific and Industrial Research, Osaka University. The mechanism to achieve this result is entirely new and unexpected in the framework of the conventional theory. This remarkable achievement would accelerate the development of next-generation energy-saving devices and quantum computers.

The research result has been published online in Nature Physics on August 14, 2011.

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(About the research)

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(About JST projects)

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