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Electron transport measurement in locally strained graphene HIKARI TOMORI, AKINOBU KANDA, University of Tsukuba and TIMS, YOUITI OOTUKA, University of Tsukuba, HIROMASA KARUBE, AKINOBU KANDA, University of Tsukuba and TIMS, DIVISION OF PHYSICS, FACULTY OF PURE AND APPLIED SCIENCES, UNIVERSITY OF TSUKUBA TEAM, SUKUBA RESEARCH CENTER FOR INTERDISCIPLINARY MATERIALS SCIENCE (TIMS) TEAM — Strain engineering is a promising method for controlling electron transport in graphene; Spatial variation of gauge fields produced by non-uniform strain in graphene causes electron scattering, leading to modulation of the electronic state such as band gap formation. We have succeeded in introducing local strain to graphene, by inserting designed dielectric nanostructures between the graphene sheet and its substrate. [1] The transport measurement of strained graphene has revealed that improvement of the mean free path is crucial for clear demonstration of effect of lattice strain on electron transport.

[1] H. Tomori et al., Appl. Phys. Express 4, 075102 (2011).

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