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Electron scattering at graphene edges S.-J. CHOI, SUNGHUN PARK, H.-S. SIM, Department of Physics, Korea Advanced Institute of Science and Technology, Daejeon 305-701, Korea, QUANTUM ELECTRON TRANSPORT THEORY GROUP TEAM — We theoretically study the reflection of electrons at edges in monolayer graphene in a low-energy limit. We consider both of zigzag and armchair edge cases. We find that in the case of zigzag edge, the reflection phase is determined by the rotation of electron pseudospin during the reflection, which is attributed to the chirality between the pseudospin and the electron momentum. On the other hand, in the case of armchair edge, the reflection phase does not contain the information of pseudospin rotation, because of intervalley mixing. The pseudospin rotation can be detected via the measurement of reflection phase in an interferometry setup in graphene with zigzag edge.

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