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**Experimental preparation of lateral Heterojunction  $\text{Sb}_2\text{Te}_3/\text{Bi}_2\text{Te}_3$  Nanoplates** FUCONG FEI, FENGQI SONG, Nanjing Univ — For the first time, lateral heterojunction of  $\text{Sb}_2\text{Te}_3$ - $\text{Bi}_2\text{Te}_3$  was successfully realized using a two-step solvothermal method. The two crystalline components were separated well by a sharp lattice-matched interface when the optimized procedure was used. Inspecting the heterojunction using high-resolution transmission electron microscopy showed that epitaxial growth occurred along the horizontal plane. The semiconducting temperature-resistance curve and crossjunction rectification were observed, which reveal a staggered-gap lateral heterojunction with a small junction voltage. Quantum correction from the weak antilocalization reveals the well-maintained transport of the topological surface state. This is appealing for a platform for spin filters and one-dimensional topological interface states. The relevant works on materials optimization and fabrication of spin devices are already under way. (Nanoletters 2015, 15, 5905–5911)

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