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**Realization and Characterization of a Curved Two-dimensional Electron Gas** NAKUL SHAJI, HUA QIN, RYAN TOONEN, ROBERT BLICK, Department of Electrical and Computer Engineering, University of Wisconsin-Madison, CHRISTOPH DENEKE, OLIVER SCHMIDT, Max-Plank-Institut fuer Festkoerperforschung, Stuttgart, Germany — Using the built-in strain from lattice mismatch between $Al_{0.33}Ga_{0.67}As$ and $In_{0.2}Ga_{0.8}As$ as a bending force, a strip of two-dimensional electron gas (2DEG) in an $Al_xGa_{1-x}As/GaAs/Al_xGa_{1-x}As$ heterostructure is curved into a tube when released from the substrate by wet etching. A variety of mesoscopic quantum devices can be defined in such curved 2DEG structures. This technology opens the door for investigating geometry-dependent electron transport under non-uniform magnetic fields. We have defined Hall bar patterns from a sheet of 2DEG using both optical and electron-beam lithography. The sample characterization under an external magnetic field will be discussed.

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