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**Study of spontaneous anomalous Hall effect in 2-D electron fluid by bosonization** WATHID ASSAWASUNTHONNET, EDUARDO FRADKIN, Department of Physics, University of Illinois at Urbana-Champaign — We explore spontaneous time-reversal symmetry breaking in two-dimensional electron fluids using the method of higher dimensional bosonization. We focus on a fluid phase in which time-reversal symmetry and chiral symmetry are broken, but the space inversion and the combination of chiral and time-reversal symmetries are intact. This phase exhibits non-quantized anomalous Hall effect in the absence of external magnetic fields which corresponds to the Berry curvature on the Fermi surface. Furthermore we investigate the Berry phase connection and its representation in terms of bosonized fields.

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