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Elastoconductivity measurements as a probe of broken mirror symmetries PATRIK HLOBIL, Karlsruhe Institute of Technology, AKASH V. MAHARAJ, PAVAN HOSUR, MAXWELL C. SHAPIRO, IAN R. FISHER, SRINIVAS RAGHU, Stanford University — We propose the possible detection of broken mirror symmetries in correlated two-dimensional materials by elastotransport measurements. Using linear response theory we calculate the shearconductivity $\Gamma_{xx,xy}$, defined as the linear change of the longitudinal conductivity σ_{xx} due to a shear strain ϵ_{xy} . This quantity can only be non-vanishing when in-plane mirror symmetries are broken and we discuss how candidate states in the cuprate pseudogap regime (e.g. various loop current or charge orders) may exhibit a finite shearconductivity. We also provide a realistic experimental protocol for detecting such a response, including the specific form of the elastoresistance for broken tetragonal symmetry.

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