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By using the “composition wedge” and “lattice-constant wedge” techniques with molecular beam epitaxy, we show that one can manipulate independently the surface chemistry and lattice constant of a single crystal substrate. Applying them to ultrathin Fe on Cu(001), we found an anomalous mechanical property of Fe. The anomalous Hall effect is one of the most prominent phenomena existing in magnetic materials. Working with epitaxial films of Fe, we succeeded in independent controls of different scattering processes through temperature and layer thickness. The resulting data appropriately accounted for the role of phonons, thereby clearly exposing the fundamental flaws of the standard plot of the anomalous Hall resistivity versus longitudinal resistivity. A new scaling has been thus established that allows an unambiguous identification of the intrinsic mechanism as well as the extrinsic mechanisms of the anomalous Hall effect.

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