Giant piezoresistance in silicon/metal hybrid resistors\textsuperscript{1} ALISTAIR Rowe, Ecole Polytechnique, CNRS — We report a giant room temperature piezoresistance in planar metal/semiconductor hybrid resistors fabricated from Aluminum and Silicon, with gauge factors $\sim 1000$ for strains up to $10^{-5}$. This new effect \cite{1} is shown to be due to the geometric arrangement of the metal and the semiconductor, and results from a stress induced redirection of the injected current from the metallic shunt into the semiconductor. Since there is a large difference in the electrical conductivity of these materials, this yields a large increase in the device resistance. This “extraordinary piezoelectricity” will be compared and contrasted with the extraordinary magnetoresistance previously observed in metal/semiconductor hybrid resistors.

\textsuperscript{1}A.C.H. Rowe et al., Phys. Rev. Lett. 100, 145501 (2008)

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