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Strain mediated suppression of the metal-insulator and antiferromagnetic transition in EuNiO3 thin films DEREK MEYERS, SRIMANTA MIDDEY, MIKHAIL KAREEV, BENJAMIN GRAY, Department of Physics, University of Arkansas, Fayetteville, AR 72701, JOHN FREELAND, Advanced Photon Source, Argonne National Laboratory, Argonne, IL 60439, USA, JAK CHAKHALIAN, Department of Physics, University of Arkansas, Fayetteville, AR 72701 — Ultrathin epitaxial films of $EuNiO_3$ were grown on a series of substrates traversing highly compressive (-2.4%) to highly tensile (2.5%) lattice mismatch. X-ray absorption spectroscopy measurements revealed a strong multiplet splitting in the tensile samples that progressively weakens with increasing compressive strain. Transport measurements further collaborated these findings, showing a successively (from tensile to compressive) lower resistance and a complete suppression of the metal-insulator transition at -2.4% lattice mismatch. The derivative of the transport showed a strong downturn around the bulk Neel temperature, which was also suppressed with compressive strain.

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