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Pseudogap in metallic layered nickelate $R_{2-x}\mathbf{Sr}_x\mathbf{NiO}_4$ MASAKI UCHIDA, K. ISHIZAKA, Y. ISHIDA, Y. ONOSE, R. ARITA, S. SHIN, Y. TOKURA, University of Tokyo, P. HANSMANN, A. TOSCHI, K. HELD, Vienna University of Technology, Y. KANEKO, ERATO-MF, X. YANG, O.K. ANDERSEN, Max-Planck-Institut, R. KUMAI, AIST — We have investigated charge dynamics and electronic structures for single crystals of metallic layered nickelates $R_{2-x}\mathrm{Sr}_x\mathrm{NiO}_4$. Angle-resolved photoemission spectroscopy (ARPES) on the barely-metallic $\mathrm{Eu}_{0.9}\mathrm{Sr}_{1.1}\mathrm{NiO}_4$ has revealed a large hole surface of x^2-y^2 character with a high-energy pseudogap of the same symmetry and comparable magnitude with those of underdoped cuprates, although the antiferromagnetic interactions are one order of magnitude smaller. Our findings strongly indicate that the high-energy momentum-dependent pseudogap (or Fermi arc) is not unique to the high-T_c cuprates but commonly develops in the anomalous quasi-two-dimensional metallic state near the Mott transition reflecting the real-space charge correlation.

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