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Polaronic absorption in Sr_2IrO_4 CHANG HEE SOHN, CCES, IBS, Seoul Natl. Univ., TONG-FEI QI, Univ. of Kentucky, KYUNG JOO NOH, Seoul Natl. Univ., HYUN-JU PARK, HYANG KEUN YOO, CCES, IBS, Seoul Natl. Univ., GANG CAO, Univ. of Kentucky, KYUNG WAN KIM, ChungBuk Natl. Univ., DEOK-YONG CHO, CCES, IBS, Seoul Natl. Univ., SOON JAE MOON, Hanyang Univ., TAE WON NOH, CCES, IBS, Seoul Natl. Univ. — Sr_2IrO_4 has received much attention as a novel $J_{\text{eff}} = 1/2$ Mott insulator. Many theorists have supposed that exotic novel ground state such as superconductivity, topological insulator, and quantum spin liquid could emerge in $J_{\text{eff}} = 1/2$ state. However, despite of great interests on Sr_2IrO_4, the ground state of this material is elusive up to now. Unlike previous Mott scenario, recent reports support that Sr_2IrO_4 can be described as Slater insulator rather than Mott insulator. The origin of temperature evolutions of electronic structure shown in many experiments also remains vague until now. Here, we investigated the detail temperature evolution of electronic structure of Sr_2IrO_4 using infrared spectroscopy. We couldn't observe any anomaly in optical conductivity near the T_N, which is not consistent with recent reports. Instead, we observed the continuous changes in our optical data which can be explained in terms of polaronic behavior, closely related to La_2CuO_4.

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