P127a Dust Polarization of Prestellar and Protostellar Sources in OMC-3

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We present the Atacama Large Millimeter/submillimeter Array (ALMA) observations of linearly polarized 1.1 mm continuum emission at $\sim$0.14″ (55 au) and CO ($J = 2 - 1$) emission at $\sim$1.5″ (590 au) towards one prestellar (MMS 4), four Class 0 (MMS 1, MMS 3, MMS 5, and MMS 6), one Class I (MMS 7), and one flat-spectrum (MMS 2) sources in the Orion Molecular Cloud 3 region. The dust disk-like structures and clear CO outflows are detected towards all sources except for MMS 4. The diameters of these disk-like structures, ranging from 16 to 97 au, are estimated based on the deconvolved sizes obtained from the multi-Gaussian fitting. Polarized emissions are detected towards MMS 2, MMS 5, MMS 6, and MMS 7, while no polarized emission is detected towards MMS 1, MMS 3, and MMS 4. MMS 2, MMS 5, and MMS 7 show organized polarization vectors aligned with the minor axes of the disk-like structures, with mean polarization fractions ranging from 0.6% to 1.2%. The strongest millimeter source, MMS 6, exhibits complex polarization orientations and a remarkably high polarization fraction of $\sim$10% around the Stokes I peak, as reported by Takahashi et al. (2019). The origins of the polarized emission, such as self-scattering and dust alignment due to the magnetic field or radiative torque, are discussed for individual sources. Some disk-like sources exhibit a polarized intensity peak shift towards the nearside of the disk, which supports that the polarized emission originates from self-scattering.