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IR observation and SED+spectroscopy fitting of a buried AGN in the nearby merging galaxy NGC 6240

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NGC 6240 is one of the famous infrared-luminous merging galaxy with two buried AGNs in the local universe ($z = 0.0245$). We performed K' ($2.12 \mu\text{m}$), L' ($3.77 \mu\text{m}$), and M' ($4.68 \mu\text{m}$) imaging of this galaxies using IRCS on the Subaru telescope with the assistance of the AO system. We also obtained $Si-2$ filter band ($8.7 \mu\text{m}$) imaging and N -band ($7.5\text{--}13 \mu\text{m}$) spectroscopy with CanariCam on the Gran Telescopio Canarias (GTC). The achieved spatial resolutions of the Subaru and GTC observations were around $0.1\text{--}0.2''$ and $0.4\text{--}0.5''$, respectively. Combining these data with literature values, we re-evaluated the $2\text{--}30 \mu\text{m}$ spectral energy distribution (SED) of the southern nucleus, and performed the SED+spectroscopy fitting by using CLUMPY torus models and a Bayesian fitting approach. The model fit suggests that the AGN in the southern nucleus has a high-covering factor torus and is deeply embedded in the host galaxy with an additional foreground extinction of $A_V=19$ mag, and its bolometric luminosity accounts for 37% of the whole energy of the system.