Extending the Analysis of TNO Data to Longer Wavelengths in Advance of James Webb Space Telescope Data

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Trans Neptunian Objects (TNOs) are objects at least 30 astronomical units (AU) away from the Sun. The distance and primitivity of TNOs allow them to preserve data from the infant solar system. Analyzing this data will enable us to look at the protoplanetary disk, the formation of the planets, and the origin of Earth. With new data arriving from the most recently launched telescope, the James Webb Space Telescope (JWST), a new angle is viewable. In this project, spectral information found in the current literature about TNO candidate materials will be used to model their surface compositions. The candidate materials of TNOs will be cataloged and the features of the astronomical data will be characterized. By using the data characteristics as a constraint, we will select the candidate materials. Using this laboratory data, we will simulate observational data and create models of TNOs. Based on these models, we will be able to accurately interpret the data from the JWST. Data on TNOs will give us insight into the formation of the solar system, information about the protoplanetary disk, and the composition of the solar system.

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