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# Seeing the Light Through the Dark

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## 1. Introduction: The Search for the Initial Conditions for Star Formation

Stars and planets form within dark molecular clouds. However, despite 30 years of study, little is understood about the internal structure of these clouds and consequently the initial conditions that give rise to star and planet formation. This is largely due to the fact that molecular clouds are primarily composed of molecular hydrogen, which is virtually inaccessible to direct observation. Because of its symmetric structure, the hydrogen molecule possesses

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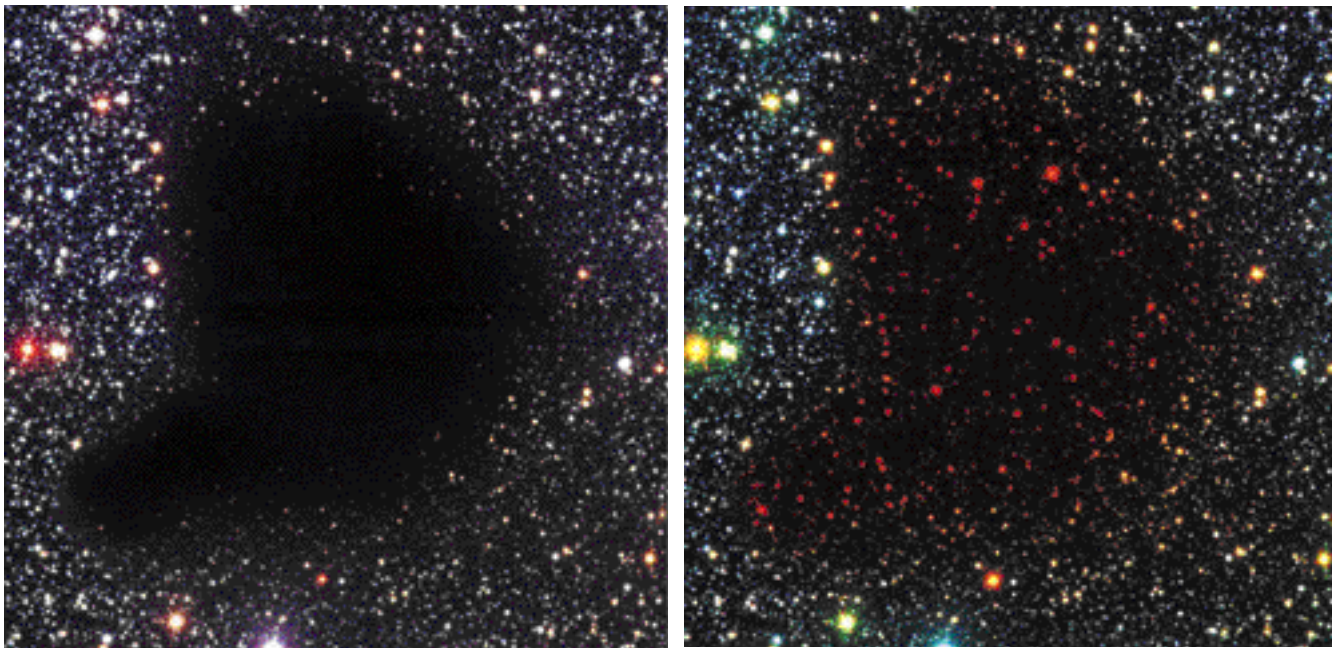

*Figure 1: Visible and near-infrared images of Barnard 68. The images are a B, V, and I-band composite (left) and a B, I, Ks-band composite (right). At visual wavelengths the cloud is completely opaque owing to extinction of background starlight caused by small (~ 0.1µm) interstellar dust particles that permeate the cloud. The red stars detected at 2 µm through the visually opaque regions of the cloud (right) are the stars that will provide direct measurements of dust extinction through the cloud.*