Modeling the ringworld of GG Tau A with the RT code POLARIS

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With its high complexity, the ringworld around GG Tau A is a great example to study the formation and evolution of protoplanetary disks around binary (or tertiary) systems. In this study, we investigate the physical characteristics of the circumbinary and circumstellar disks around the stellar components of GG Tau A.

To achieve our aims, we perform radiative transfer (RT) simulations with the code POLARIS (Reissl et al. 2016; Brauer et al. 2017) to obtain emission maps at multiple wavelengths. These simulations consider the complex density structure of the circumbinary and circumstellar disks as well as the direct and scattered emission of the multiple stellar components. By comparing the simulated emission maps with observations that are performed at various wavelengths, we derive constraints on various parameters and characteristics of our model such as the density distribution, inclination, and dust grain properties.