

Taking deep breaths: Pulsating inner disk of DQ Tau

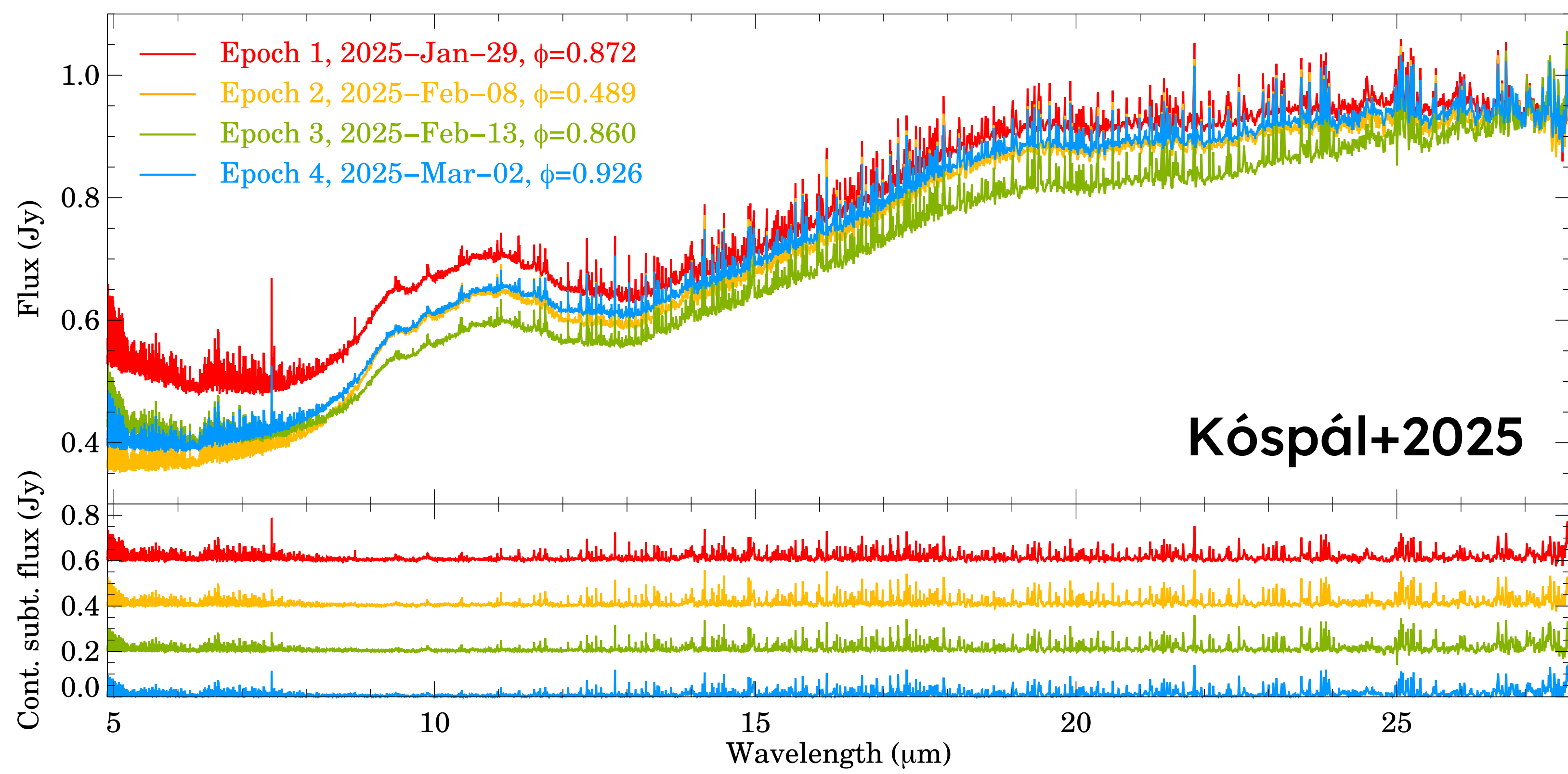


Lis Zwicky^{1,2}, Ágnes Kóspál¹, Péter Ábrahám^{1,3}
(they/them) (she/her) (he/him)

Abstract

DQ Tau is a young close binary system surrounded by a circumbinary disk. The stars orbit each other with a period of around 16 days with luminosity brightenings occurring all over the spectrum when stars are at their periastrons. This predictability of bursting events makes DQ Tau unique among young stars and a very valuable tool in investigating the impact of luminosity variability on the surrounding disk. Our research team used this opportunity to study the time-variable inner disk physics in DQ Tau. We obtained four epochs of JWST observations: three around the periastron and one at the apastron, all complemented by contemporaneous optical and near-infrared spectroscopic and photometric observations.

The goal of this work is to model and fit observed mid-IR spectrum using radiative transfer tools.



Radiative transfer: **RADMC-3D**
(Dullemond+2012)

Dust composition: **Kóspál+2025**

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