The Planet-Forming Environment Close to Young Stars

NExSS team at
Jet Propulsion Lab, California Inst. of Technology

Mario Flock, postdoc – radiation-MHD with PLUTO
Neal Turner, PI – protostellar disk modeling

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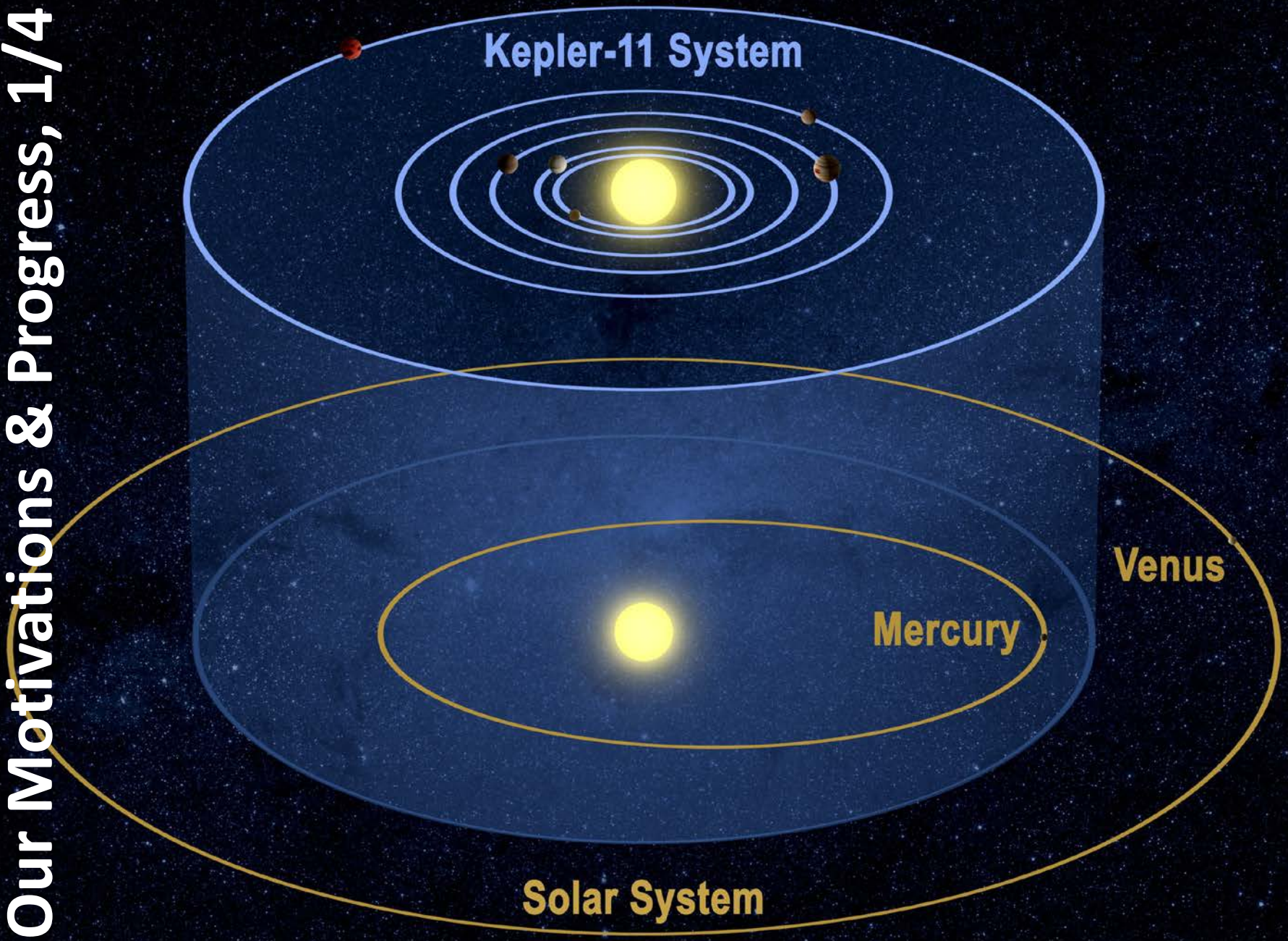
Our Motivations & Progress, 1/4

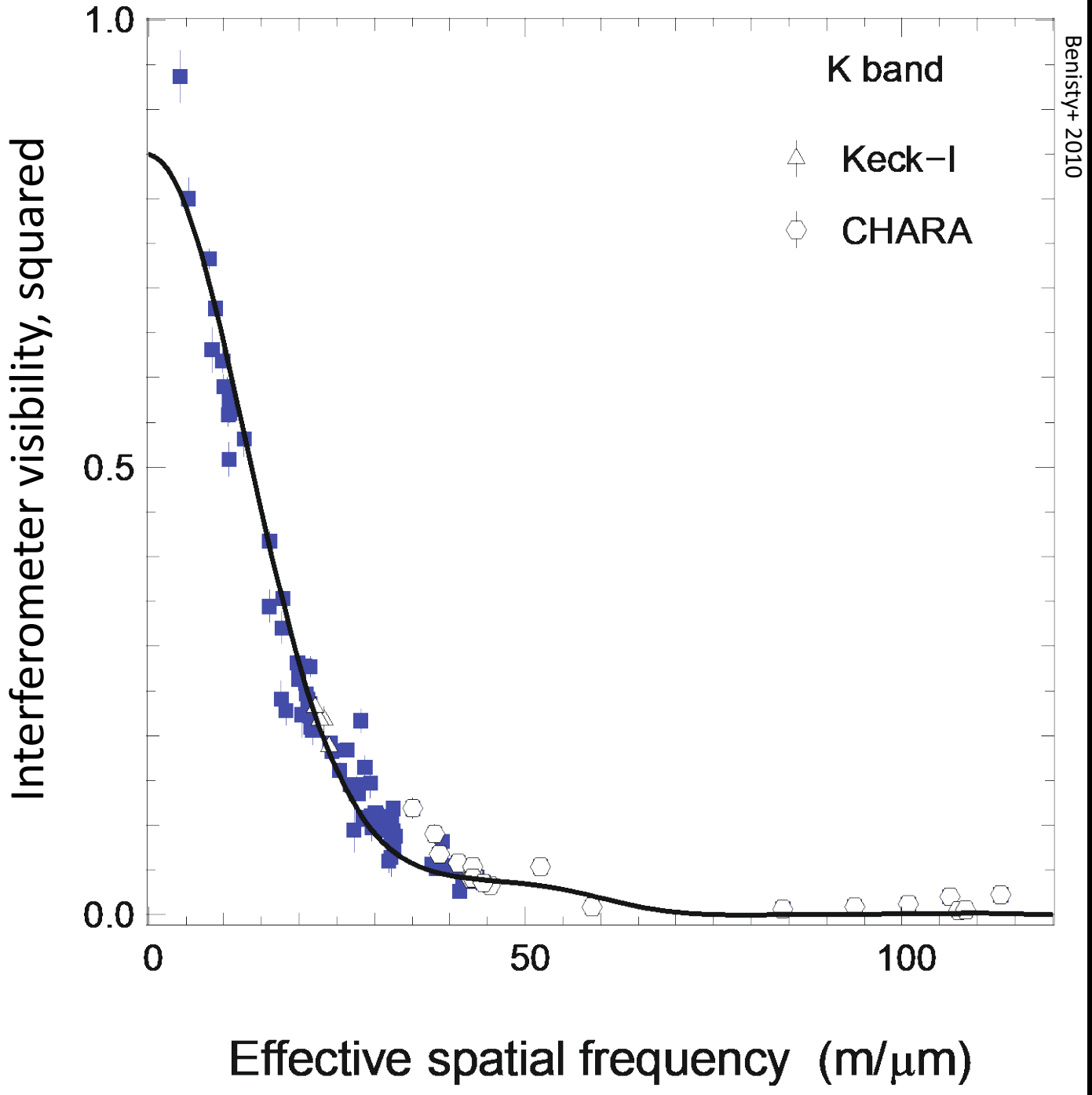


NASA/Tim Pyle

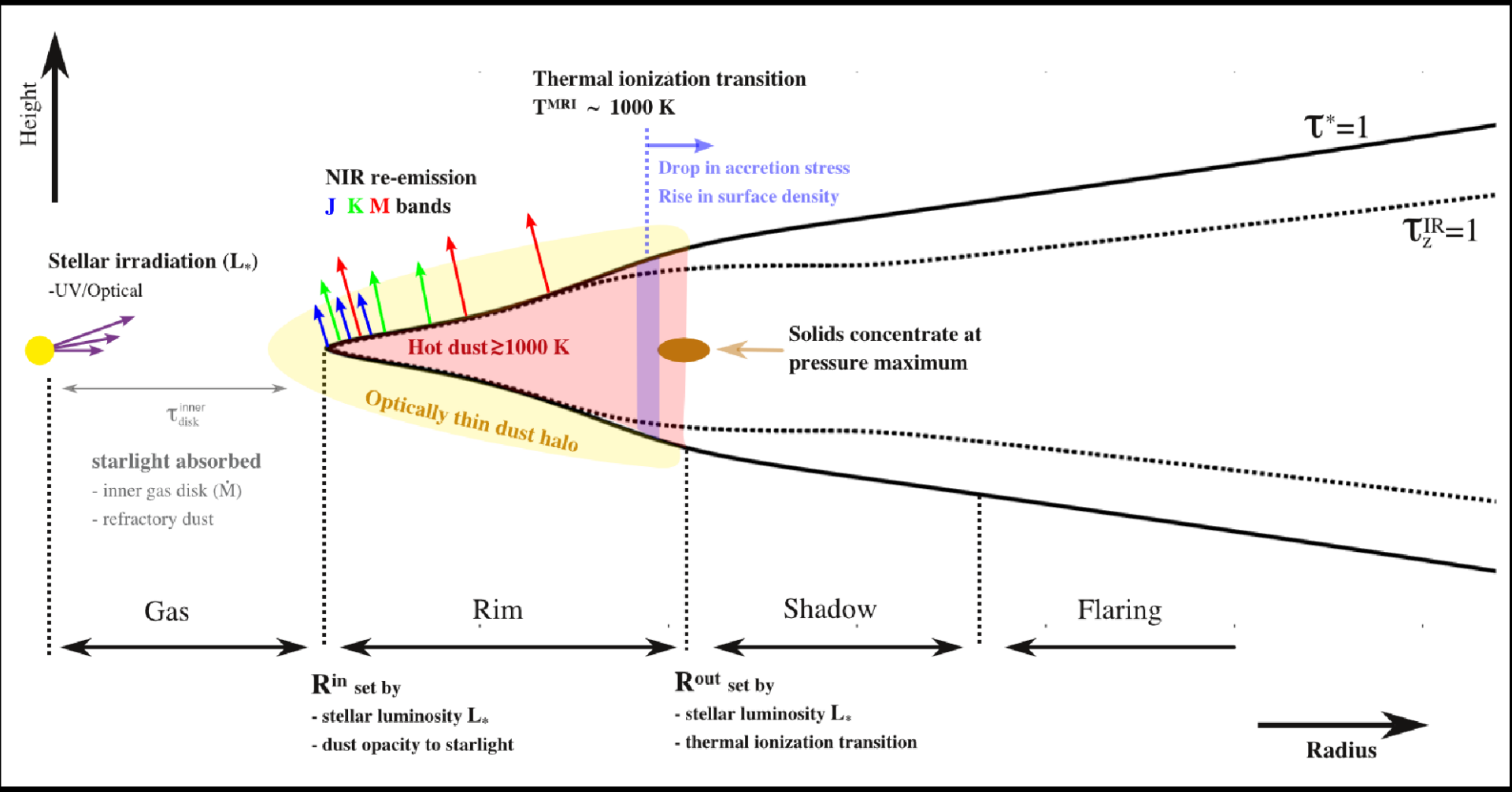
Our Motivations & Progress, 2/4

Radiation-MHD model synthetically observed at 1.25, 2.2, 4.8 μm
Red ring is silicate sublimation front facing central star (not shown)

Our Motivations & Progress, 3/4

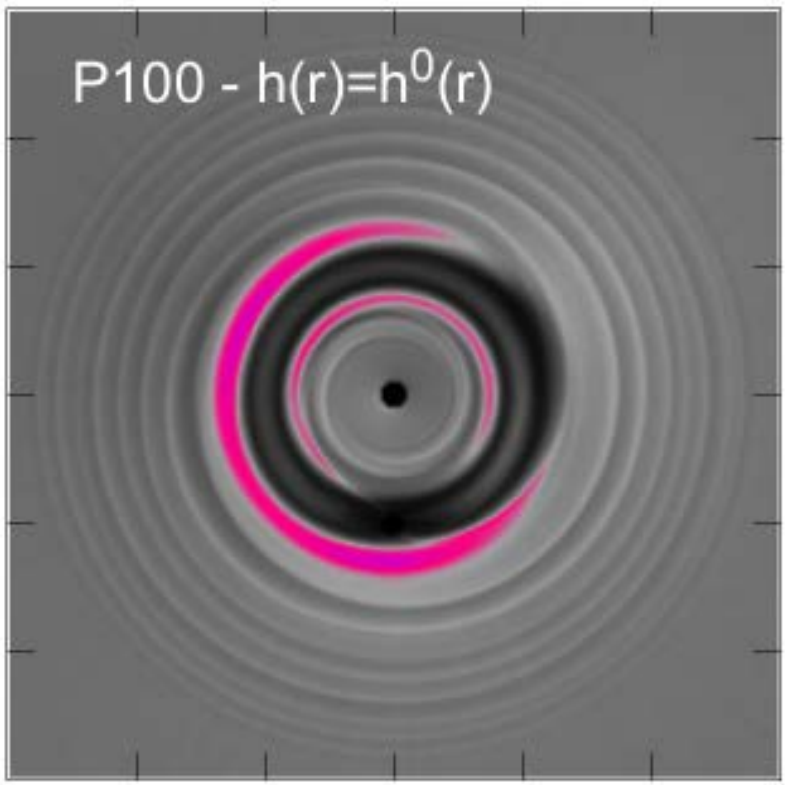


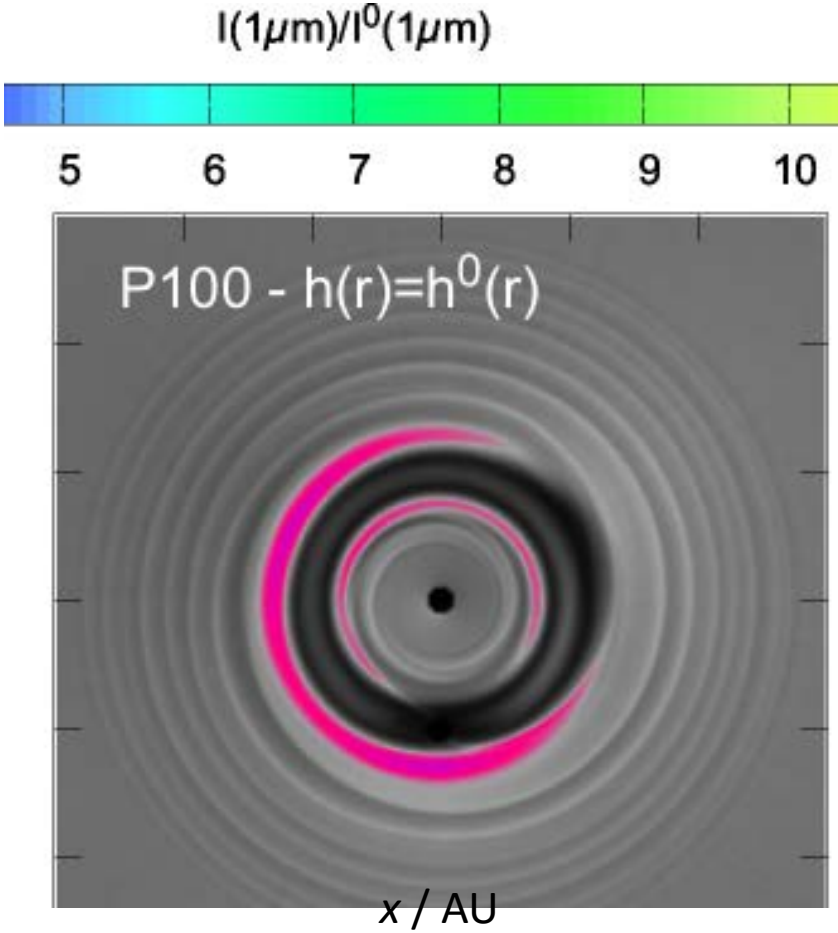
Our Motivations & Progress, 4/4



Collaborations Catalyzed by NExSS, 1/5

4-day visit to Arizona State NExSS team to brainstorm proposal ideas with Steve Desch & colleagues

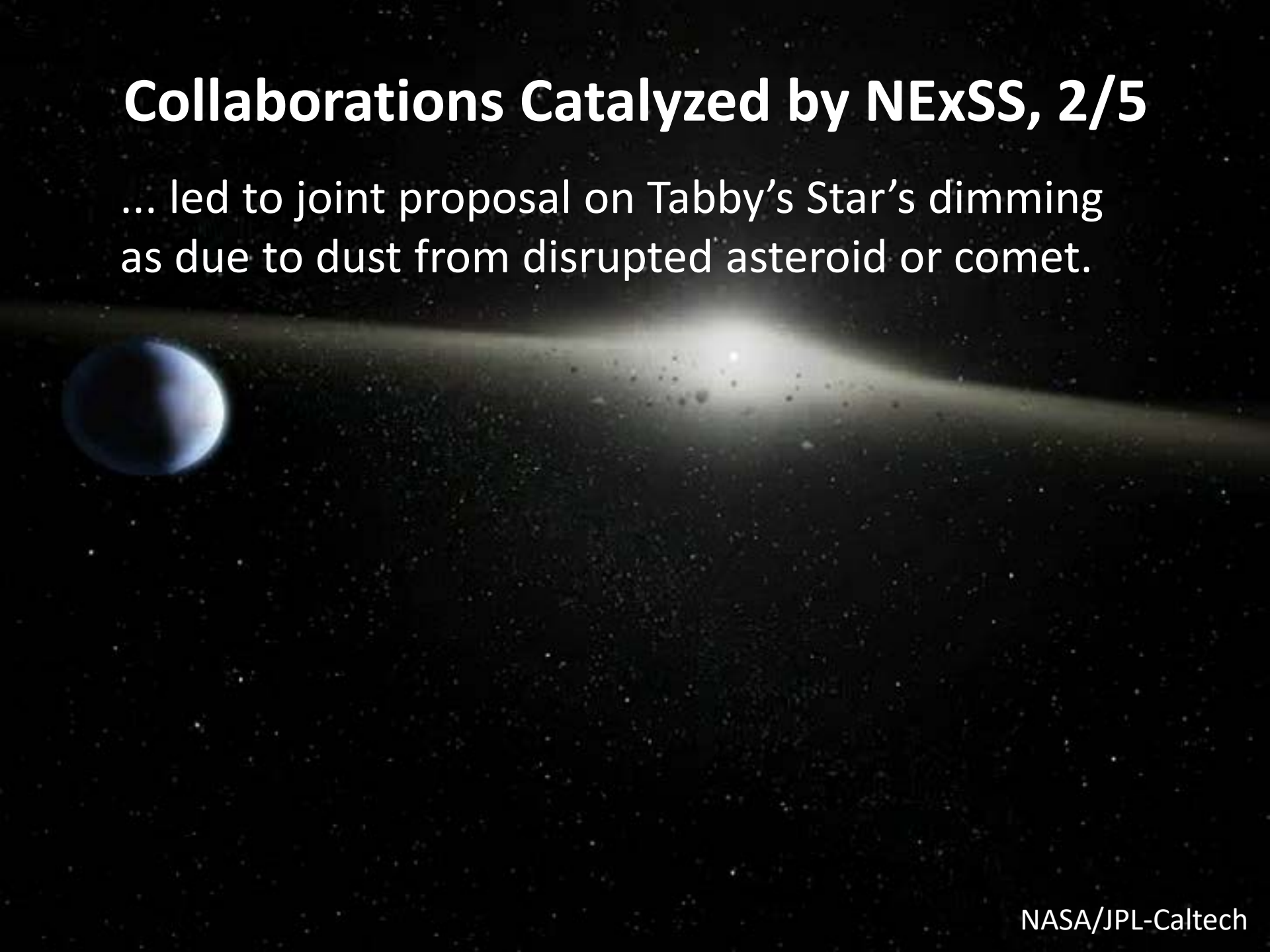




Isella & Turner, in prep.

Collaborations Catalyzed by NExSS, 2/5

... led to joint proposal on Tabby's Star's dimming as due to dust from disrupted asteroid or comet.



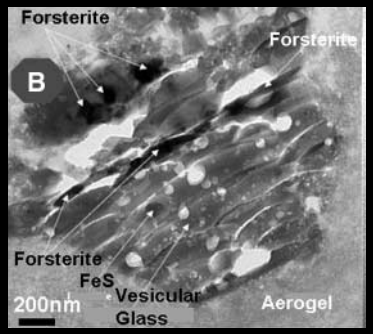
NASA/JPL-Caltech

Collaborations Catalyzed by NExSS, 3/5

U. Wyoming NExSS PI Hannah Jang-Condell's graduate student Dylan Kloster

Summer 2016 project at JPL:
How to tell young planets apart from other features in turbulent protostellar disks?

Collaborations Catalyzed by NExSS, 4/5



Zolensky+ 2006

Do comets carry grains processed at the proto-Sun's silicate sublimation front?

XRP proposal: *Hot Dust Near Young Stars*

Gudipati

Henderson

Collaborations Catalyzed by NExSS, 5/5

We are ready to offer 2 NExSS NPP opportunities:

1. with PSU and ASU on observations and modeling of Tabby's Star and dust-producing disruption events generally, and

1. with ASU on how gas-rich planets got their heavy element enrichments.