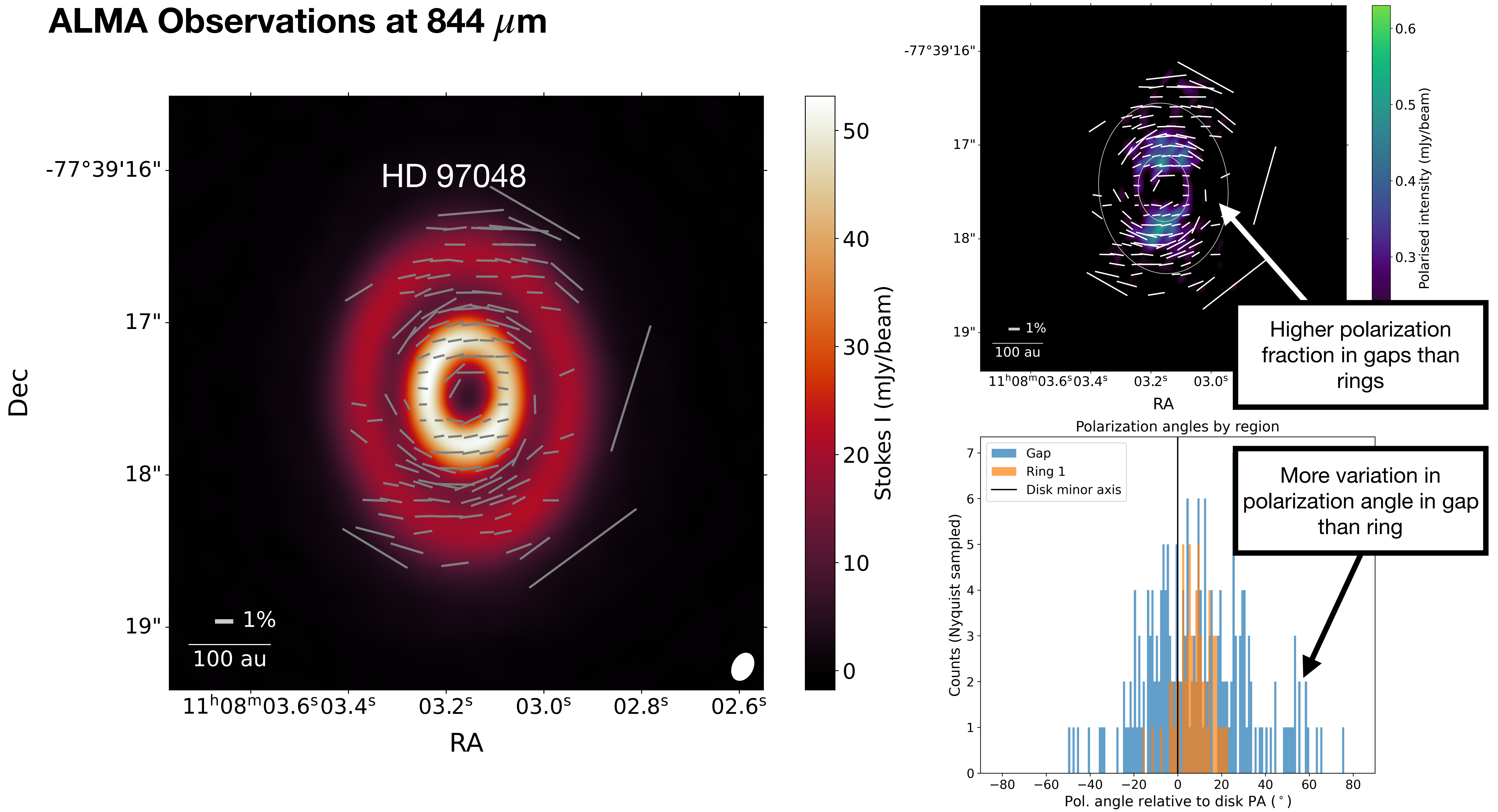


Dust Polarization Up Close and Personal in a Planet-Forming Disk: Substructure and Grain Porosity Influence Morphology

Rachel Harrison, Christophe Pinte, and Daniel Price



ALMA Observations at 844 μm



Key takeaways: The polarized emission at 844 μm is consistent with **self-scattering**. Differences in **optical depth** between the rings and gaps can create differences in polarization fraction, as higher optical depths in the rings attenuate the polarization fraction. Changes in the direction of the **radiation anisotropy** between the rings and gaps can lead to differences in the polarization angle, as photons scattering on grains in the gaps come mainly from the adjacent rings, while photons scattering on grains in the rings come mainly from the azimuthal direction.

Polarization Modeling: Solid Grains (porosity = 0.0) vs. Aggregates (porosity = 0.9)

