Table 2: SIGNATURES OF COMETARY ACTIVITY IN HAeBe DISKS

Observation	Interpretation
Red-shifted Absorption Features	**Infalling Material**
•Neutral Species with short lifetimes	local production via grain dissociation
•Multiple Ionization Stages with Similar profiles	production of collisionally ionized species in bow shocks
•Ballistic Velocities	Solid Parent Bodies not subject to drag
•Mixture of Elements in Redshifted Gas	Parent Bodies not differentiated
•Duration of Episodes $\geq$20 hours	detect swarms/families not individual bodies
•Transition to Episodic Infall at $\approx$6 Myr	bombardment rate drops with clearing of the disk
IR Solid State Features	**Grains with a$\leq$ few μm**
• broad 9.5 and 18 μm features	amorphous olivine
• sharp 11.2 - 33 μm features	partially crystalline olivine
• 69 μm emission (HD 100546)	forsterite (e.g. crystalline Mg-rich olivine)
• bulge in SED near 21μ	FeO
• 9.5-10 and longer λ features	pyroxene
• 60-80 μm features	crystalline water ice
• 3.28, 6.2, 7.7, 8.6, and 11.3 μm 3.4, 3.5 μm	Polycyclic Aromatic Hydrocarbons (PAHs)
Mixture of Observed IR features	**Detection of Cometary Grains**
Large amplitude light variation and polarization variability	**Partial occultation of photosphere by dense dust clouds in edge-on disk**