Abstract Submitted for the PSF15 Meeting of The American Physical Society

Correlated Molecular Maser Flares in IRAS $18566+0408^1$ DANIEL HALBE, ESTEBAN ARAYA, Western Illinois University — We report observations conducted with the 305m Arecibo Telescope in Puerto Rico, showing multiple correlated molecular maser flares in IRAS 18566+0408. This is the only massive star-forming region where correlated variability of three molecular maser species has been found. The three molecular species monitored were 6.7 GHzmethanol (CH₃OH), 6 cm formaldehyde (H₂CO), and 6.035 GHz hydroxyl (OH). The spectrum of the CH₃OH reveals at least 9 different molecular clouds moving at different LSR velocities, the fastest CH₃OH (87.8 km s^{-1}) component simultaneously flares with the H₂CO (79.5 km s^{-1}) maser. The flare peaks from most of the remaining CH₃OH maser components, in addition to the OH (85.8 km s^{-1}) maser, are delayed by approximately 3 months with respect to the H₂CO maser peak. We discuss results of a statistical analysis that suggests that multiple pumping mechanisms may be causing the flares instead of a simple time delay.

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Date submitted: 15 Oct 2015

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