

P117a **An Extremely Young Protostellar Core, MMS 1/ OMC-3: Episodic Mass Ejection History Traced by the Micro SiO Jet**

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We present ~ 0.2 arcsec (~ 80 au) resolution observations of the CO (2–1) and SiO (5–4) lines made with the ALMA toward an extremely young intermediate-mass protostellar source ($t_{\text{dyn}} < 1000$ years), MMS 1 located in the Orion Molecular Cloud-3 region. We have successfully imaged a very compact CO molecular outflow associated with MMS 1, having deprojected lobe sizes of ~ 18000 au (red-shifted lobe) and ~ 35000 au (blue-shifted lobe). We have also detected an extremely compact ($\lesssim 1000$ au) and collimated SiO protostellar jet within the CO outflow. The maximum jet speed is measured to be as high as 93 km s^{-1} . The SiO jet wiggles and displays a chain of knots. These are the first direct evidences that MMS 1 already hosts a protostar. The position-velocity (PV) diagram obtained from the SiO emission shows two distinct structures: (i) bow-shocks associated with the tips of the outflow, and (ii) a collimated jet, showing the jet velocities linearly increasing with the distance from the driving source. Comparisons between the observations and numerical simulations quantitatively share similarities such as multiple-mass ejection events within the jet and Hubble-like flow associated with each mass ejection event. Finally, no significant time variation is detected in the $850 \mu\text{m}$ light curve obtained from the JCMT/SCUBA 2 toward MMS 1. This suggests that no drastic change in the mass accretion rate, possibly related to the episodic accretion, has occurred during the last eight years.