The submillimetre wavelength spectrum of Orion-A

Conference or Workshop Item

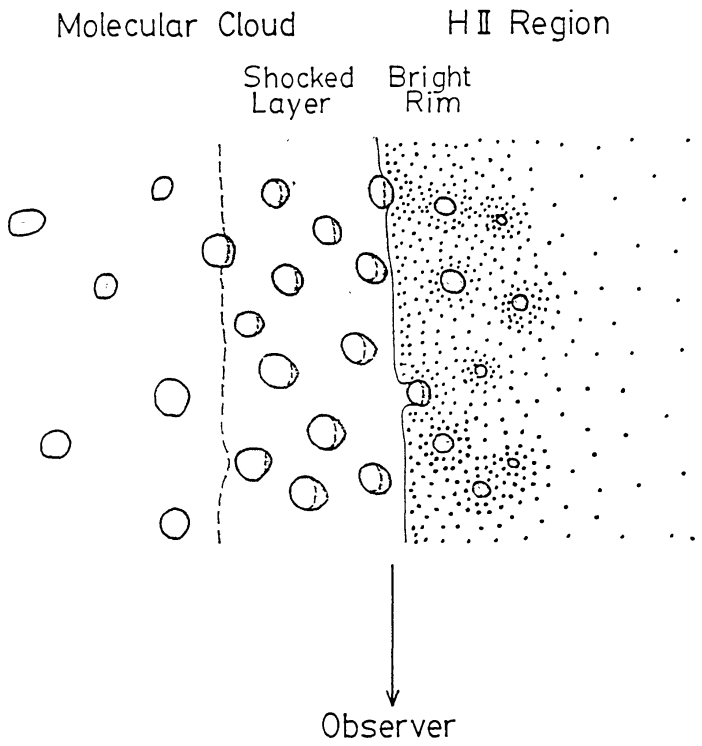

Fig. 3. A schematic representation to show the inhomogeneous or clumpy structure of the bright bar. Dashed lines represent shock fronts.

THE SUBMILLIMETRE WAVELENGTH SPECTRUM OF ORION A

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We report on the first submillimetre wavelength spectral scan of the Orion A molecular cloud in the frequency range 342-463 GHz (0.88-0.65 mm) using the Queen Mary College Submillimetre Heterodyne Receiver at UKIRT. Twenty-eight molecular transitions were detected, the majority of these for the first time. The lines include transitions of CO, CS, HCN, HCO^+, H_2CO, H_2CS, SO, SO_2, CCH, SiO and CH_3OH. Upper limits are reported for a number of lines including CO^+ and the ground state transition of NH_2. A number of the lines are surprisingly intense, and we will present maps of the relative distributions of HCO^+, HCN, H_2CO and CCH, which show striking differences in their spatial structures. We will present details of the excitation of a number of the lines based on the results from this survey.