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## The submillimetre wavelength spectrum of Orion-A

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White, Glenn J.; Monteiro, Tania; Rainey, Ruth; Richardson, Kevin; Griffin, Matthew and Avery, L. (1987). The submillimetre wavelength spectrum of Orion-A. In: IAU Symposium No 115 - Star Forming Regions, 11-15 Nov 1985, Tokyo, Japan, p. 153.

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Version: Version of Record

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<http://adsabs.harvard.edu/abs/1987IAUS..115..153W>

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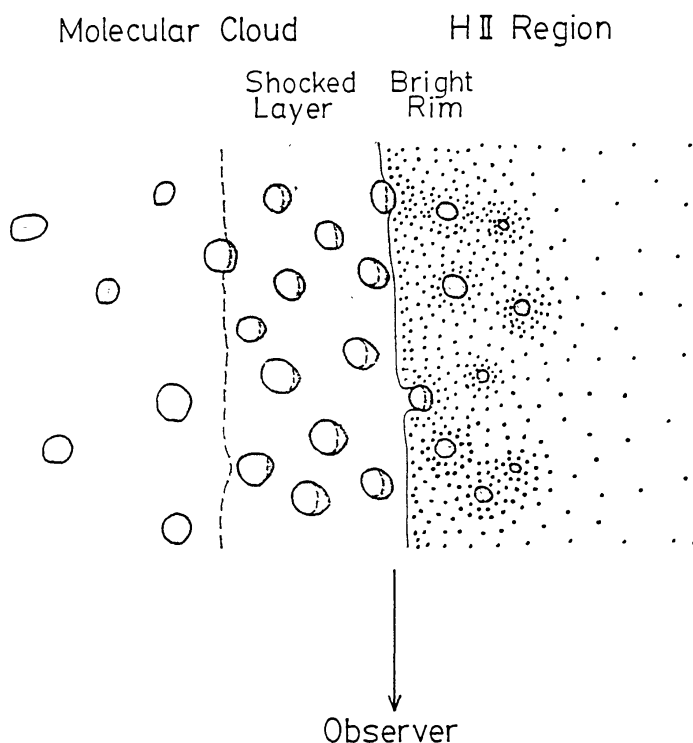


Fig. 3. A schematic representation to show the inhomogeneous or clumpy structure of the bright bar. Dashed lines represent shock fronts.

#### 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<sup>+</sup>, H<sub>2</sub>CO, H<sub>2</sub>CS, SO, SO<sub>2</sub>, CCH, SiO and CH<sub>3</sub>OH. Upper limits are reported for a number of lines including CO<sup>+</sup> and the ground state transition of NH<sub>2</sub>. A number of the lines are surprisingly intense, and we will present maps of the relative distributions of HCO<sup>+</sup>, HCN, H<sub>2</sub>CO 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.