



Fig. A.1: Map of centroid velocity of DCO<sup>+</sup> (3-2). The black dots showing the position of each spectrum. Overlaid in black contours is the H<sub>2</sub> column density (levels:[1.0,1.5,2.0] 10<sup>22</sup> cm<sup>-2</sup>).

## Appendix A: Positions of spectral grid

Figure A.1 shows the position of each spectra in Fig. 3. There are 40 black dots that show the exact location of each spectrum at an 18 arcsec interval from each other.