

Data Source

The O, B, and A0 – A5 stars are selected from columns of the Hipparcos catalogue. The stellar position, parallax, proper motion and magnitude come from the Hipparcos catalogue (ESA, 1997), while B magnitude and B – V are from the Tycho catalogue (ESA, 1997). Furthermore, stellar radial velocities are adopted from the mean stellar radial velocities published by Barbier–Brossat and Figon (2000).

Hipparcos Catalogue

The Hipparcos catalogue is the most suitable database for this research because of the stable instrument, the reference database concluded radio sources and the amounts of data that contain precise positions and proper motion. However, there is no B magnitude in the Hipparcos catalogue. On the basis of the consistency, B and B-V are both selected from the Tycho catalogue, which is the other mission belonging to the Hipparcos satellite. The basic information about the Hipparcos and Tycho catalogues has been given on the table 3.

Table3: The result of Hipparcos and Tycho catalogues

	Hipparcos	Tycho
Quantities of target stars	118218	1058322
Astrometry precision	~0.001"	~0.025"
Main target	Parallax Position Proper motion	Parallax Position Proper motion Photometry

Radial velocities

Arranged from the Wilson – Batten catalogue (Duflot *et al.*, 1995, WEB hereafter), Bibliography of stellar radial velocities (Abt *et al.*, 1972), and new observed data, the catalogue of radial velocities achieved by Barbier – Brossat and Figon contains the mean radial velocities of 36145 stars including 20574 new data. The WEB is combined from the catalogues of mean radial velocities published by Wilson (1963) and Evans (1978), and from that of spectroscopic binary systems (Batten *et al.*, 1989).

There would be two different radial velocities of one star because of different observing ways. These stars are annotated with ‘e’ indicating emission radial velocity, with ‘g’ indicating the radial velocity of gravity center for a sub-system, and with ‘G’ indicating that for double or multiple system. In the case, the radial velocity with smaller R_V is selected firstly, and with the radial velocity of gravity center for double or multiple system secondarily.