

*III. SPECTROSCOPIC RESEARCH PROGRAMMES*

*b) Poster papers*

# THE FIRST EIGHT YEARS OF RADIAL VELOCITY STUDIES AT FICK OBSERVATORY

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**ABSTRACT.** The stellar radial velocity (RV) observations collected during the first eight years (1976-1984) of operation of the Fick Observatory photoelectric RV spectrometer have been tabulated for publication (Beavers and Eitter, 1986). Included are 16,000 observations of over 2,000 late-type stars. For these observations at the coude focus of the 61 cm telescope the velocity zero-point is virtually the same as that for the early Lick radial velocity survey (Campbell and Moore, 1928), i.e. Lick-Fick =  $-0.08 \pm 0.08$  km/sec. The zero-point comparison for DAO spectrometer measurements is DAO-Fick =  $-0.54 \pm 0.05$  km/sec. During the last four years of this study the error of the "high quality dip" observations is  $\pm 0.8$  km/sec. Thirty-three of these stars have been selected for use as future bright ( $m < 7.0$ ) velocity standards at Fick Observatory.

## 1. FICK RV STUDIES

The stellar radial velocity observations made at I.S.U.'s Erwin E. Fick Observatory during the period 1976-1984 have recently been collected into a summary for publication (Beavers and Eitter, 1986). This work contains approximately 16,000 measurements made with the 61 cm coude telescope and photoelectric spectrometer (Beavers and Eitter, 1977). The instrument employs a mask (solar spectrum) in the focal plane of a high dispersion (2.6 A/mm) spectrometer in a configuration inspired by that at Cambridge Observatory (Griffin, 1967).

Analysis of this large data set yields velocity zero-point comparisons with several other radial velocity instruments or collections of measurements. It also reveals a gradual reduction in the observational error for the Fick system to the present value  $\approx \pm 0.8$  km/sec for highest quality observations. From within this data sample a list of "constant velocity" stars has been selected to cover all right ascensions (see Table I). These stars are being used to determine the nightly zero-point drift of the Fick instrument. A few gaps are being filled by stars whose constancy, though not yet proven, will be monitored.

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TABLE I

FICK OBSERVATORY VELOCITY REFERENCE STARS			
HR	RV(KM/SEC)	HR	RV(KM/SEC)
0022	-19.8	5854	2.7
0188	13.4	5947	-32.1
0253	-22.8	6056	-20.0
0402	16.8	6299	-56.2
0603	-10.9	6418	-25.3
0617	-14.5	6603	-12.2
0951	23.2	6973	36.0
1231	61.4 <sup>a</sup>	7192	-17.7
1601	14.5	7602	-39.7
2016	45.2	7635	-34.0
2696	-27.7	7753	15.8
2990	3.6	8313	-22.6
3748	- 4.4	8414	6.8
3779	18.6	8498	- 9.0
4377	- 9.3	8795	- 5.2
4932	-14.1	8916	6.2
4954	-15.9		

<sup>a</sup>Velocity Constancy not yet proven

## 2. REFERENCES

- Beavers, W. I., and Eitter, J. J. 1977, *Pub. A.S.P.* **89**, 733.  
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