Vilnius - Straižys *et al.* - 1965

General purpose system.

GENERAL INFORMATION

AUTHORS	V. Straižys, J. Sŭdžius, and K. Zdanavičius
TELESCOPE	0.63m (reflector), Moletai Obs.
DETECTOR	FEU-79 (S-20 cathode)
MAIN ARTICLE	Straižys, V., Zdanavičius, K. 1965 Bull. Vilnius Obs. 14, 1

SYSTEM DESCRIPTION

BANDS DESCRIPTION [178], pg 66				FLUX CALIBRATION			
band	filter	λ_0 (Å)	FWHM (Å)	A0 V (#)	O V (#)	A0 V (∗)	O V (∗)
U	1.5mm BS5 + 10mm UFS2	3450	400	3.23	18.97	3.34	19.22
P	2mm SZS22 + 2.7mm UFS6	3740	260	4.47	14.39	4.53	14.58
X	3.2mm ZhS4 + 6.2mm 3S7 + 1.8mm SZS21 + 1.0 FS7	4050	220	7.41	11.12	7.51	11.27
Y	5.2mm ZhS12 + 2.6mm SZS21 + 2mm SS15	4660	260	5.68	6.52	5.76	6.60
Z	2mm ZhS17 + 3.1mm ZS7 + 10mm SZS22	5160	210	4.39	4.59	4.45	4.65
V	1.5mm OS11 + 5mm SZS22 + 2mm PS7	5440	260	3.75	3.75	3.80	3.80
S	interference	6550	200	2.16	1.90	2.19	1.92
T	interference	6250	200				

(#) Fluxes for a $V = 0.0$ star (units of 10^{-9} erg cm^{-2} s^{-1} Å^{-1}). [178], pg. 66
(∗) Fluxes for a $V = 0.0$ star (units of 10^{-12} W cm^{-2} μm^{-1}). [285], pg. 427

ZERO POINT: Color indices are zero for unreddened O-type stars. [178], pg. 66

SYSTEM ANALYSIS

REDDENING-FREE PARAMETERS [285], pg. 431-454

A general expression for reddening-free parameters (involving four or three bands) is:

$$Q_{ABCD} = (A-B) - \frac{E(A-B)}{E(C-D)} \cdot (C-D) \qquad Q_{ABC} = (A-B) - \frac{E(A-B)}{E(B-C)} \cdot (B-C)$$

Q_{UPY} vs Q_{PYV} : classification of B stars.

Q_{UPY} vs Q_{XYV} : classification of B8 to early-G stars

Q_{UXY} vs Q_{UPYV} : classification of A5-G0 stars.

Q_{UPY} vs Q_{XZS} : classification of G-K type stars.

Q_{XZS} vs Q_{XYZ} : classification of K-M type stars.

RELATIONS WITH OTHER SYSTEMS [285], pg. 488-493

UBV - Johnson and Morgan - 1953

$$(B-V) = -0.33 + 0.50\,[(X-V) + (Y-V)] \quad \text{for stars with } (B-V) \leq 0.8$$

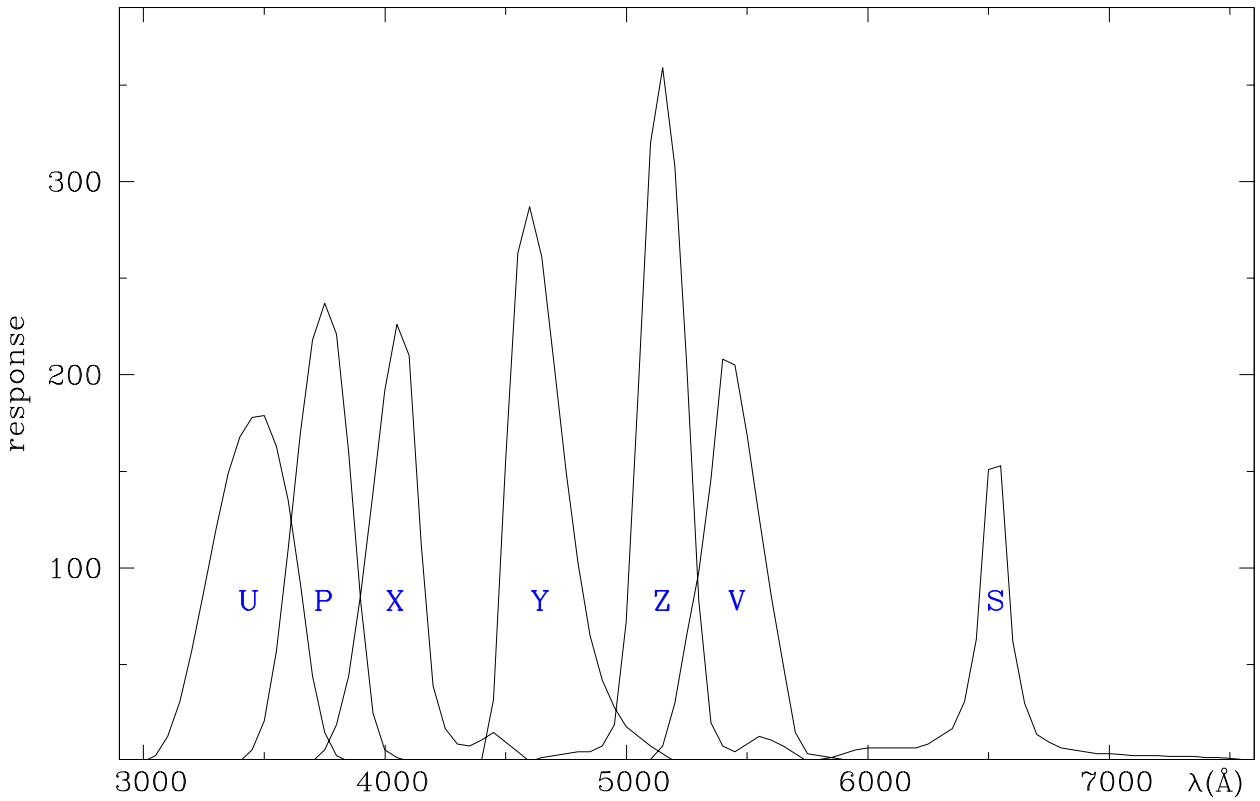
uvby Hβ - Strömgren and Crawford - 1956

$$(U-Y) = (u-b) + 0.30 - 0.024\,(b-y)_0 + c\,E(b-y) \quad \text{excluding M-giants and supergiants}$$

$$(Y-V) = 0.16 + 0.09\,(b-y) \quad \text{for O-K stars}$$

where c increases from 0.005 for early-type stars to 0.016 for F- supergiants and goes to zero for late-type stars.

TRANSMISSION CURVES [287]



U		*P*		*X*		*Y*		*Z*		*V*		*S*			
λ (Å)	ϒ	λ (Å)	ϒ	λ (Å)	ϒ	λ (Å)	ϒ	λ (Å)	ϒ	λ (Å)	ϒ	λ (Å)	ϒ	λ (Å)	ϒ
3000	0	3400	0	3700	0	4400	0	4600	0	5050	0	5750	0	6950	4
3050	3	3450	6	3750	6	4450	32	4650	2	5100	1	5800	1	7000	4
3100	13	3500	21	3800	19	4500	156	4700	3	5150	8	5850	2	7050	3.5
3150	31	3550	57	3850	44	4550	263	4750	4	5200	30	5900	4	7100	3
3200	57	3600	110	3900	87	4600	287	4800	5	5250	65	5950	6	7150	3
3250	88	3650	170	3950	139	4650	261	4850	5	5300	98	6000	7	7200	3
3300	120	3700	218	4000	192	4700	206	4900	8	5350	146	6050	7	7300	2.5
3350	149	3750	237	4050	226	4750	150	4950	19	5400	208	6100	7	7350	2.5
3400	168	3800	221	4100	210	4800	103	5000	72	5450	205	6150	7	7400	2
3450	178	3850	160	4150	112	4850	65	5050	193	5500	169	6200	7	7450	2
3500	179	3900	82	4200	39	4900	42	5100	320	5550	126	6250	9	7500	1.5
3550	163	3950	25	4250	17	4950	28	5150	359	5600	85	6300	13	7550	1
3600	135	4000	6	4300	9	5000	18	5200	308	5650	50	6350	17	7600	1
3650	92	4050	2	4350	8	5050	13	5250	206	5700	15	6400	31	7650	0.5
3700	44	4100	0	4400	11	5100	8	5300	83	5750	4	6450	63	7700	0
3750	15			4450	15	5150	4	5350	20	5800	3	6500	151		
3800	3			4500	10	5200	0	5400	8	5850	2	6550	153		
3850	0			4550	5			5450	5	5900	1	6600	62		
				4600	0			5500	9	5950	0	6650	30		
								5550	13			6700	14		
								5600	11			6750	10		
								5650	8			6800	7		
								5700	4			6850	6		
								5750	0			6900	5		