

BEPI-COLOMBO filters

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Abstract

Key words: spectral libraries — flux calibration — filters

1 Filter profiles

The filter profiles are shown in Fig. 1.

2 Determination of AB magnitudes

AB magnitudes were obtained by integrating over the spectra convolved with the filter response.

By definition

$$mag_{AB} = -2.5 \log_{10}(\bar{f}_v) - 48.60 \quad (1)$$

In the IDL code the formulation by Bessell & Murphy (2012) was implemented.

$$mag_{AB} = -2.5 \log_{10} \frac{\int f_{\lambda}(\lambda) S(\lambda) \lambda d\lambda}{\int S(\lambda) c d\lambda / \lambda} - 48.60 \quad (2)$$

$f_{\lambda}(\lambda)$ is in $\text{erg cm}^{-2} \text{s}^{-1} \text{\AA}^{-1}$, λ is in \AA , and the light speed c is in \AA s^{-1}

The integration is performed with the trapezoidal method.

3 Datasets

The synthetic magnitudes were measured on a subsample of 133 SPSSv3.4 stars, results are in Figs. 2 and 3.

The 61 PVL stars are shown in Figs. 4 and 5.

The CALSPEC stars are shown in Figs. 6 and 7.

References

Bessell, M. & Murphy, S. 2012, PASP, 124, 140

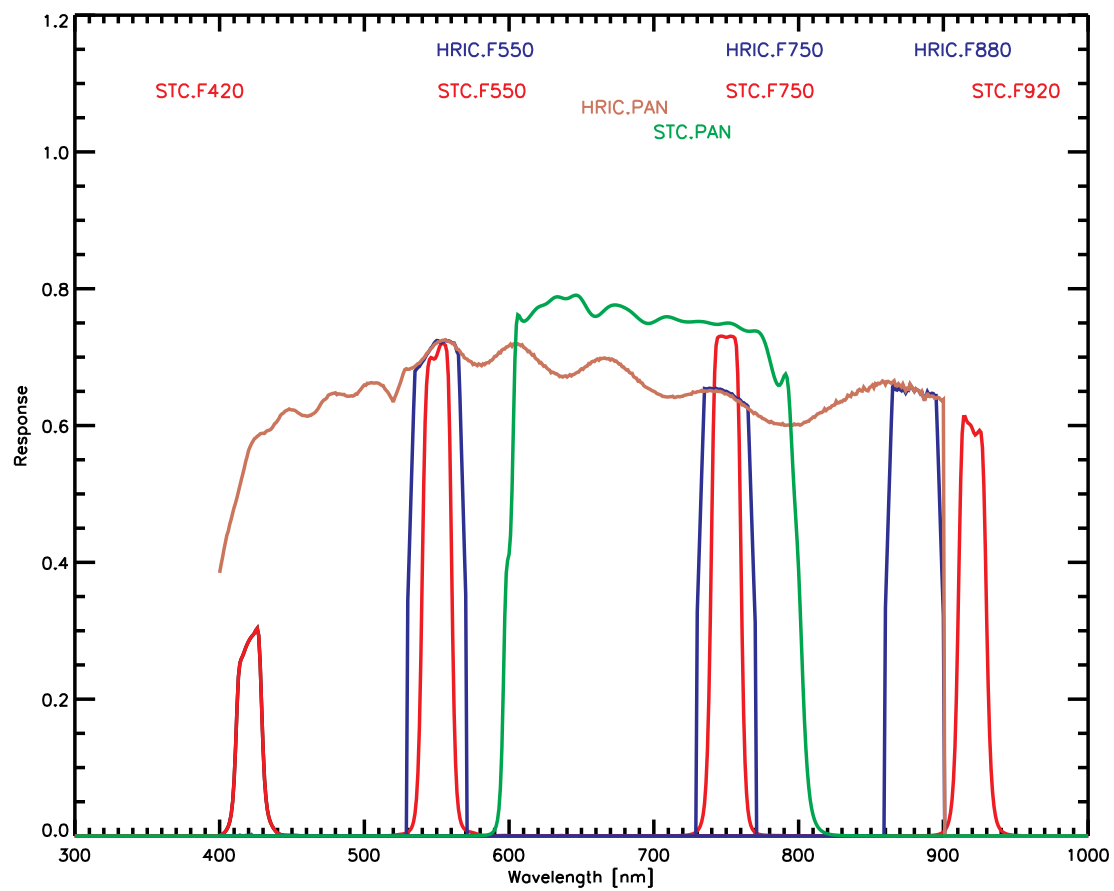


Fig. 1. BEPI-COLOMBO filter profiles.

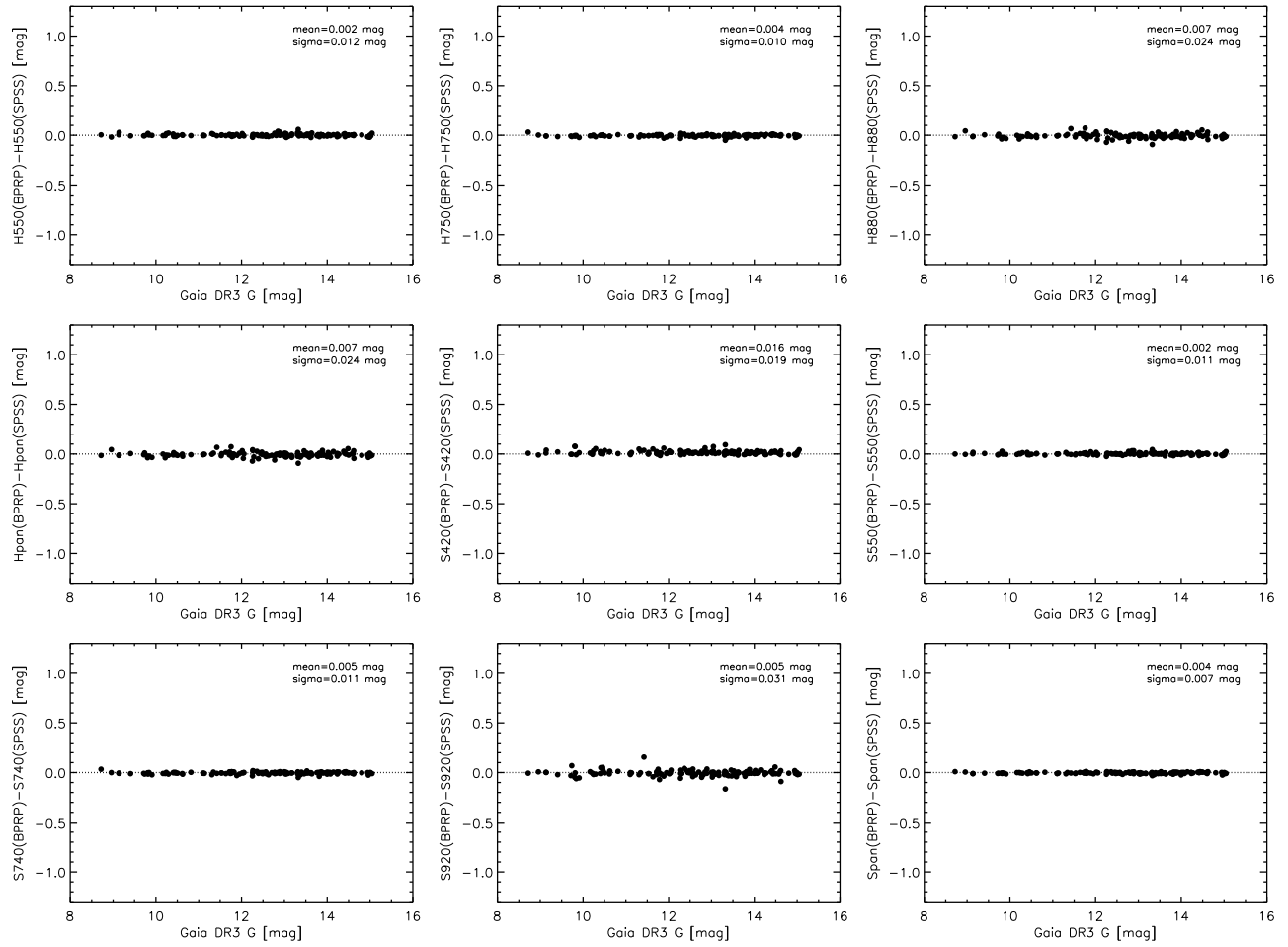


Fig. 2. Synth_mag(BPRP)-Synth_mag(SPSSv3.4) vs. G magnitudes.

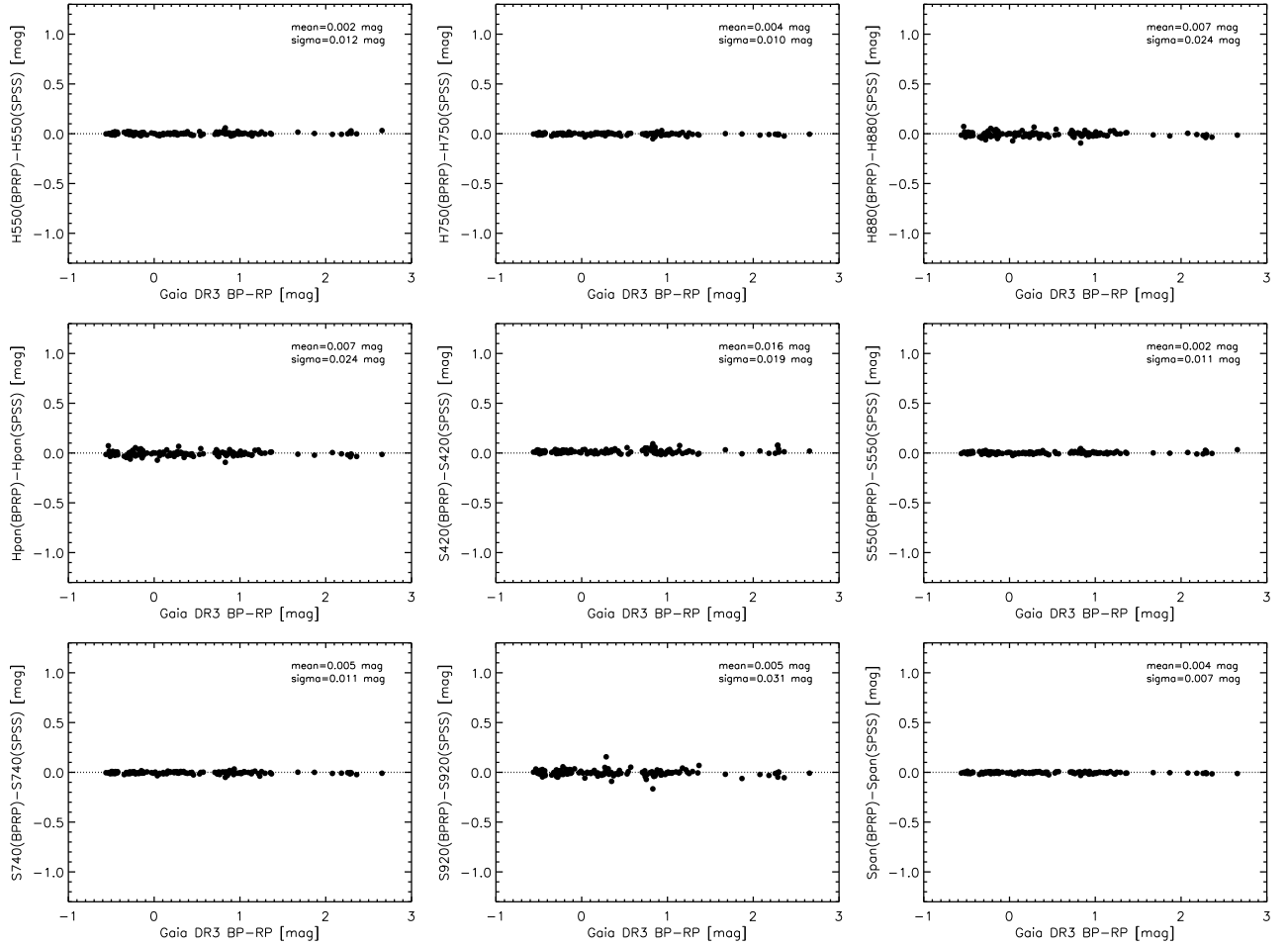


Fig. 3. $\text{Synth_mag(BPRP)} - \text{Synth_mag(SPSSv3.4)}$ vs. BP-RP colors.

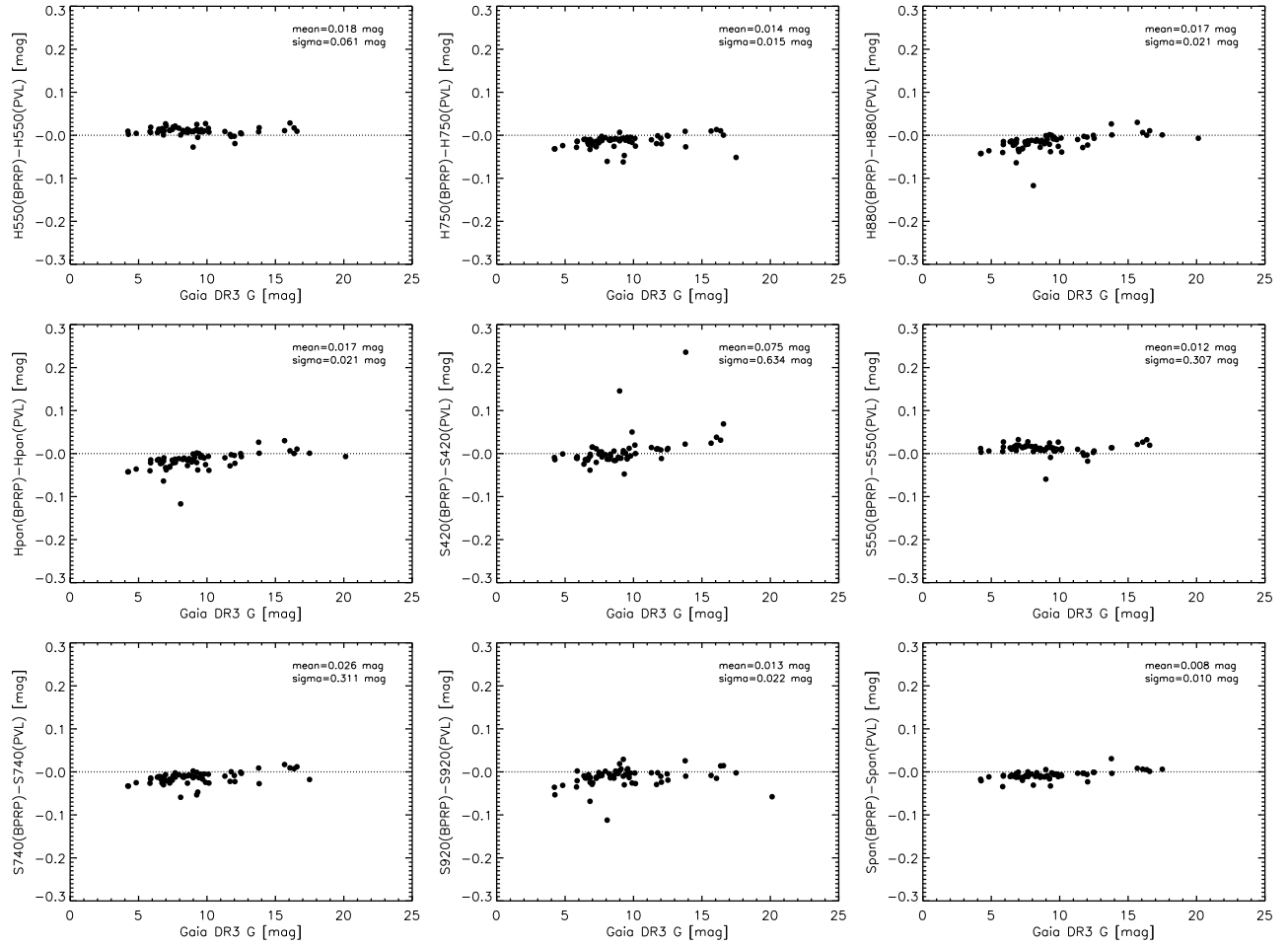


Fig. 4. Synth_mag(BPRP)-Synth_mag(PVL) vs. G magnitudes.

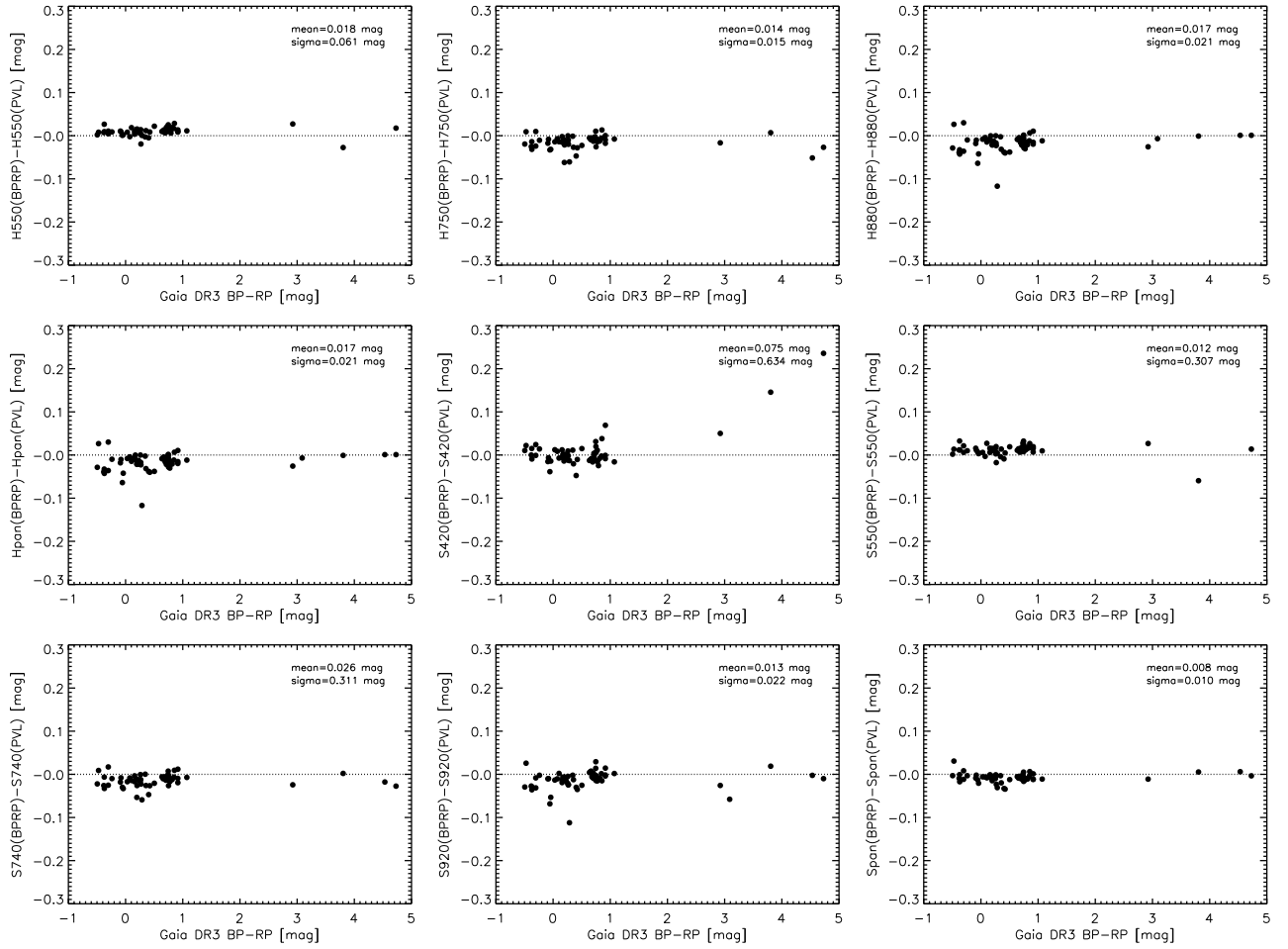


Fig. 5. Synth_mag(BPRP)-Synth_mag(PVL) vs. BP-RP colors.

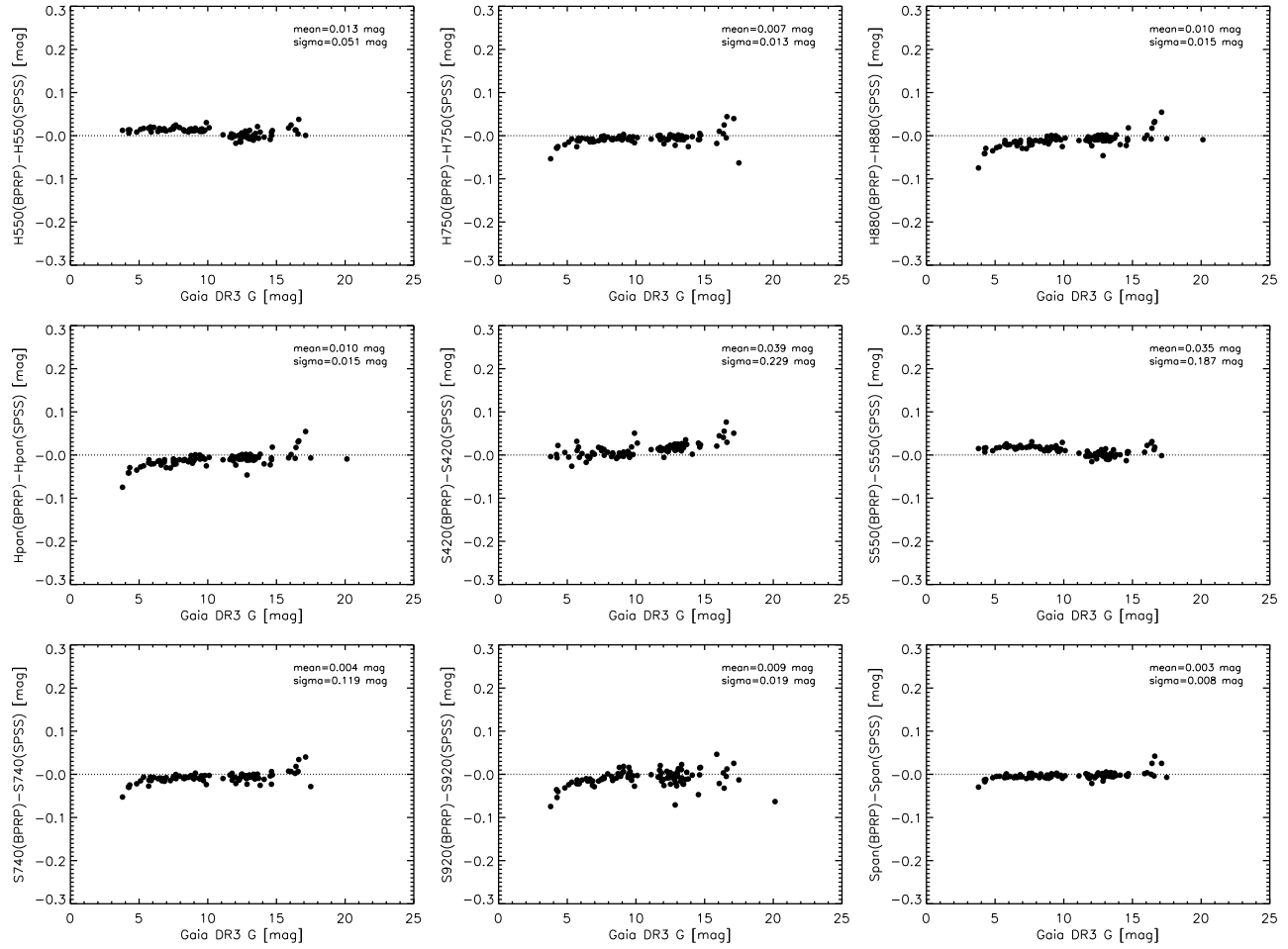


Fig. 6. Synth_mag(BPRP)-Synth_mag(CALSPEC) vs. G magnitudes.

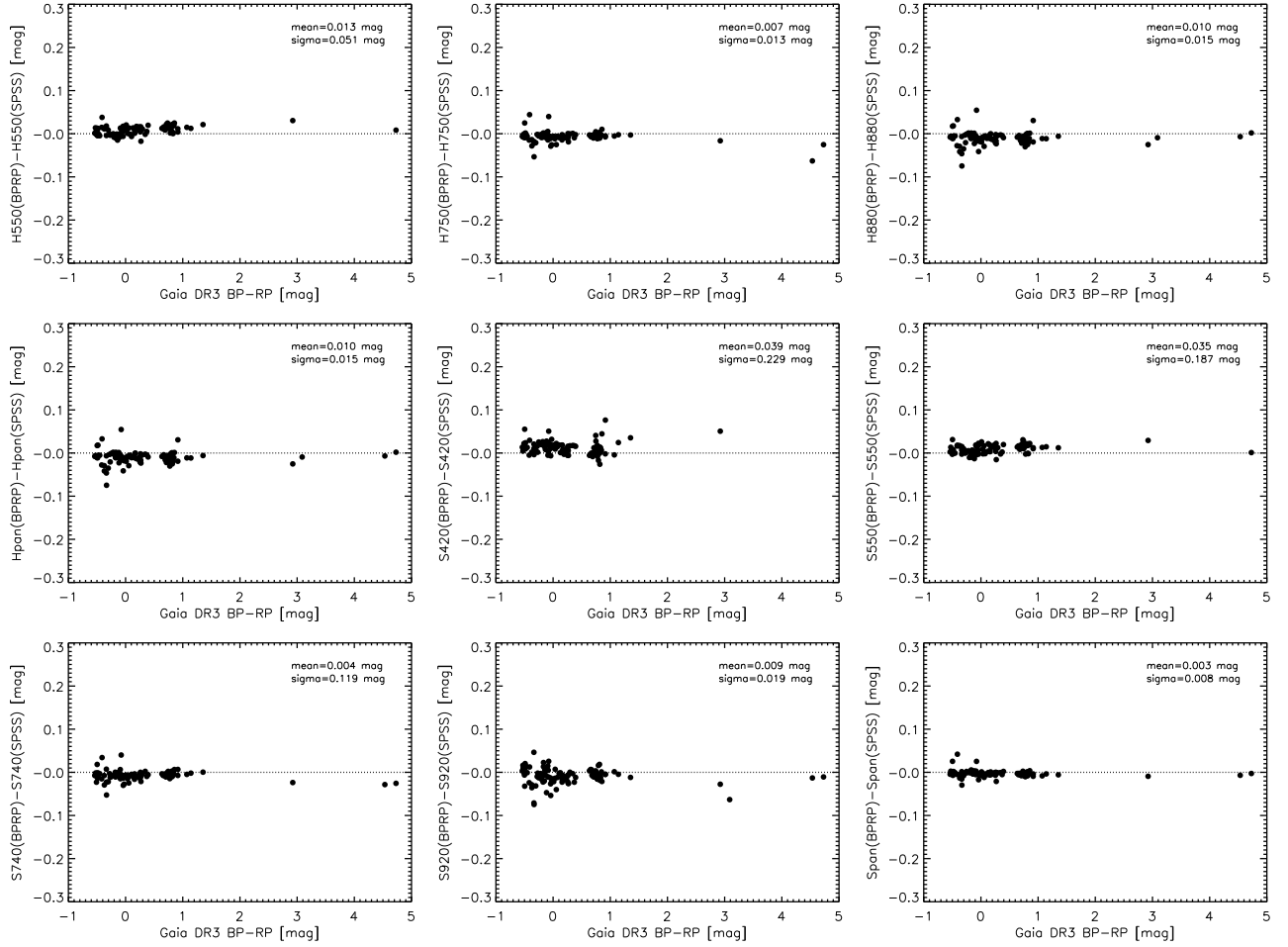


Fig. 7. Synth_mag(BPRP)-Synth_mag(CALSPEC) vs. BP-RP colors.