RevMexAA (Serie de Conferencias), **42**, 129–129 (2013)

CONCEPTUAL DESIGN OF A TWO-DEGREE FIELD CORRECTOR AND ADC FOR PRIME FOCUS AT THE 4.2 M WHT

N. O'Mahony,[1] T. Agócs,[2] D. Cano,[1] M. Balcells,[1] C. R. Benn,[1] and D. Abrams[1]

We present a conceptual optical design for a new refractive corrector for the prime focus of the 4.2 m William Herschel Telescope, optimised to allow wide-field multi-object spectroscopy.

The proposed design incorporates a counter-rotating cemented-doublet pair acting as Atmospheric Dispersion Corrector (ADC). It satisfies the demanding requirement that the PSF be no larger than 0.6 arcsec (80% encircled energy) over a wavelength range of 370–1000 nm, with a two degree FOV. This version of the design has evolved from those previously published (Agócs et al. 2010) and models an extended secondary obscuration, as well as taking into account the coupling of light into optical fibres at the image plane. This is achieved by contraining the image plane to be flat and ray intercepts to stay as close as possible to the normal. It thus satisfies science requirements for future projects such as WEAVE wide-field spectroscopy or PAU-CAM photmetric redshifts. Consultation with glass manufacturers from the inception of the design, and the details mentioned, bring it closer to forming the basis for a realistic manufacturable system.

REFERENCES

Agócs, T., Balcells, M., Benn, C. R., Abrams, D. C., & Cano Infantes, D. 2010, Proc. SPIE, 7735, 773563

[1]Issac Newton Group of Telescopes, Apartado de Correos 321, 38700 Santa Cruz de La Palma, Islas Canarias, Spain (nom@ing.ing.es).

[2]NOVA-ASTRON, Oude Hoogeveensedijk 4, 7991 PD Dwingeloo, Netherlands.