

## COMMISSION 25: STELLAR PHOTOMETRY AND POLARIMETRY

*(PHOTOMETRIE STELLAIRE ET POLARIMETRIE)*

**PRESIDENT:** C. Sterken

**VICE-PRESIDENT:** A. Landolt

**ORGANIZING COMMITTEE:** S. Adelman, P. Bastien, M. Bessell, S. Fabrika, R. Gilliland, I. Glass, J. Graham, H. Hensberge, P. Martinez, E.F. Milone, K. Sekiguchi, P. Stetson, V. Straizys, A. Walker, W.H. Warren

### 1. Introduction

The Business Meeting of Commission . 25 took place on July 16 in Sydney. Present were: D. Crawford, J. Graham, K. Kissell, A. Landolt, G. Mathys, E. Milone and C. Sterken.

Elections of a new OC and VP were organized by email during the first months of 2003. As agreed during the Commission Business Meeting in Manchester, the more senior OC members would roll off, and younger people be nominated. Three nominations came in: C. Jordi, U. Munari and F. Grundahl. P. Martinez accepted Vice-Presidency and Arlo Landolt became President. In order to comply with the EC guidelines, the remaining SOC members were restricted to P. Bastien, S. Fabrika, and R. Gilliland.

### 2. In Memoriam Alan W.J. Cousins (1903–2001)

The meeting started with a simple reminiscence of Alan W.J. Cousins (1903–2001), one of our most prominent Commission members, who passed away shortly before his 100th birthday. For more than seven decades he contributed many high-quality papers on photometry and photometric standards, and he was also a keen variable-star photometrist.

As Kilkenny (2001) put it: “*He was a scholar and a gentleman. He was at the top of his field for decades and I often felt that I, and others, might have disappointed him by failing to meet the high standards he set for himself. . .*”. That his standards were extremely high is evident from his statement “*I have been unhappy all my life with photometry. . . mainly the things I did myself*” (Cousins 2001). For more details about Cousins’ life and work, we refer to Kilkenny (2001, 2002).

### 3. The future of the Commission

The meeting reflected on the future of Commission 25, i.e. an answer was sought to the question whether or not our Commission should be dissolved to be replaced by a Working Group within Division IX. Concerning the future of the Commission, the following arguments were brought forward:

- Photometry — the use of photometric instruments and techniques to make an accurate determination of the amount of electromagnetic energy (as a function

of wavelength) received from a celestial object — is a fundamental technique in astronomy. Just like the position or the velocity of a celestial object is a fundamental parameter, the magnitude, colors and polarimetric parameters are equally fundamental quantities.

- Commission members strongly point out that standards of quality must be met, and must be preserved. An IAU Commission is a working solution guaranteeing the continuity and preservation of photopolarimetric methods and practices. A Working Group, on the other hand, is much more short-lived, and will not achieve the goals put forward.
- Photometry is such a fundamental technique that it is a Division-wide observational pillar — Division V (Variable Stars), is but one example. This fact is also obvious when scrutinizing the many requests for Commission support in applications for IAU-sponsored Colloquia, Symposia and Joint Discussions.

The members present come to an unanimous conclusion not to dissolve Commission 25.

The issue whether the Commission reports (Transactions A) still have significance was amply debated. It is evident that the vastness of the relevant science published during a triennium largely exceeds the scope of such overviews, very unlike the situation of several decades ago. The usefulness of such reports, especially in the short formats offered today, was very much doubted.

#### 4. Infrared Working Group Report

G. Milone described new simulations and field trials of the infrared passband system developed and discussed by IRWG and published in Young, Milone, and Stagg (1994). That work illustrated the state of infrared photometry and suggested ways in which it could be improved. In particular, they presented a new set of passbands better centered and shaped within the atmospheric windows so that they minimized the dependence of photometry on the water vapor bands, which had defined the edges of many previous infrared passbands, especially when used at sites and under conditions for which they were not designed.

In his report, Milone presented additional numerical simulations for three atmospheric models (sited at 1, 2, and 4.2 km altitude above sea level), demonstrated a measure of the signal-to noise ratio in the new passbands for these models, and presented observational data in the near-IR passbands, namely *i*<sub>Z</sub>, *i*<sub>J</sub>, *i*<sub>H</sub>, and *i*<sub>K</sub>, obtained at the RAO, near Calgary, Alberta, a relatively low-altitude observing site.

Extinction coefficients obtained over a three-year interval demonstrated the utility of this system for most astronomical sites where photometry can be performed. It was mentioned that a list of standard star observation has been obtained for transformation purposes, but that these needed to be checked and expanded. Both numerical and field trials continued to demonstrate the broad potential of this system for precise photometry, especially its high signal-to-noise characteristics and capability of extra-atmosphere determinations from Bouguer extinction measures.

C. Sterken

*President of the Commission*

#### References

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 Kilkenny, D. 2001, *Obituary: A.W.J. Cousins (1903-2001)*, The Observatory, 121, 350

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- Young, A. T., Milone, E. F., Stagg, C. R. 1994, *A&A* 105, 259