Properties of meteoroids derived using narrow-band synthetic photometry

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Introduction

The use of photometry in Astrophysics provides information about the nature and properties of the celestial objects and astronomical phenomena. In the case of line-emission spectra, selected narrow-band filters could gather as much information as low resolution This work proposes a definition of spectroscopy. a set of narrow-band filters [1] and its further use on a fireball spectrum catalogue [2] using synthetic photometry. The system is designed to maximise the scientific return and try to derive physical and chemical properties of the meteors. We discuss the results from narrow-band photometry compared to theoretical and observational spectroscopic data (e.g., differential ablation for different lines; colour-colour diagrams).

The filter collection is available at the Filter Profile Service of the Spanish Virtual Observatory (http://svo.cab.inta-csic.es).

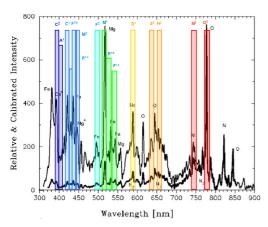


Figure 1: Proposed photometric system based on narrow-band filters [1], represented over a sample of firebal spectrum from [3].

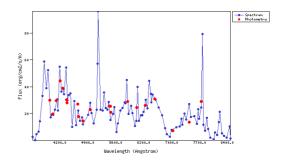


Figure 2: Fireball spectrum (blue) with photometric points measured using VO tool (red). It shows how these points contain much of the information of the spectrum.

References

- [1] Ocaña, F., Zamorano, J., and Gallego, J., Proceedings of the International Meteor Conference, 15–18 September 2011, Sibiu, Romania, 2011.
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- [3] Abe, S., Yano, H., Ebizuka, N., and Watanabe, J.-I., Earth, Moon, and Planets, Vol. 82, pp. 369–377, 1998.