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 spectroscopy. This work proposes a definition of 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 fireball 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