

Prof. Jan Kratochvíl
Studijní oddělení
Ke Karlovu 2027/3
121 16 Praha 2
Czech Republic

Dear Professor Kratochvíl:

I have read the thesis “Properties of faint meteors studied by video observations”, by Mr. Vlastimil Vojáček. The thesis presents an analysis of more than 150 video meteors with spectral observations and ablation modelling.

This paper confirms the results of smaller, earlier studies, and finds some new results. The most interesting are the different spectral characteristics for meteors with double-peaked light curves, which have not been seen before, and the link between grain size and sodium depletion in sun-approaching meteoroids, as predicted. The modelling results (largest and smallest grain sizes etc) would be more convincing with higher-resolution wake studies, but the work is a good start in the area. The fact that the grain size distribution inferred from the model matches the size distribution of cometary particles measured by the Rosetta mission is intriguing. The work done will help with developing new models for the ablation of faint meteors, which in turn will help to determine the structure of meteoroids and to infer the original structure of comets and asteroids.

The candidate has done extensive work in reducing raw data in several formats, linking spectral and white light observations, and adding in the ablation modelling. The work is a small but significant advance on the state of the science, and is evidence for the candidate’s ability to do original scientific work.

Sincerely,

Dr. Margaret Campbell-Brown
Associate Professor
Department of Physics and Astronomy
University of Western Ontario
Canada