

## Photometry and polarimetry of asteroids: phase angle effects

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A sharp increase in brightness and the negative branch in the degree of linear polarization are common phenomena observed at small phase angles for different types of Solar system bodies. Both phenomena are considered to have similar physical nature and their joint analysis is of a great value to better understand light-scattering mechanisms and to improve basis for data interpretation in terms of physical characteristics of the surface regoliths.

The parameters characterizing magnitude phase curves such as phase coefficient, amplitude and width of the opposition effect are generally very similar for asteroids belonging to the same composition type. On the other hand, the majority of asteroids observed so far show polarimetric phase angle behaviors close to the average phase curve of the corresponding composition type. Using polarimetric phase curves it is possible to distinguish several types of asteroids which are difficult to distinguish based on spectral data alone.

We will discuss in detail the following issues:

- main features of magnitude and polarization phase curves for various asteroid composition types;
- relationships between photometric and polarimetric parameters;
- wavelength dependence of brightness and polarization phase curves;
- phase angle effects of extremely dark surfaces;
- problem of determination of absolute magnitudes;
- accuracy of albedo estimates from phase curve parameters;
- differences in the phase curve behaviour at large phase angles and their influence on phase integral.

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