[#6084]

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MEASURING OF SOME BASALTS' SPECTRA WITH THE COMPARISON OF THE METAL METEORITE' SPECTRUM

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Measuruments

Small-size universal grating monochromator: *D*= 3-4 нм/mm. Fotoresistor FR-4: λ= 350-900 нм.

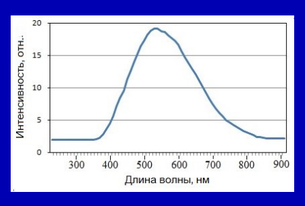


Figure 1
Relatively spectral sensitivity

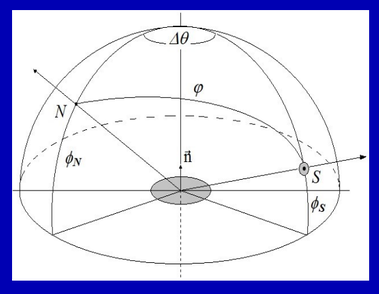


Figure 2
Reference system

$$\begin{cases} d\Phi(\lambda) = b(\lambda)\sin\phi_N\, d\omega dS, \\ d\Phi_0 = b_0(\lambda)\sin\phi_N\, d\omega dS. \end{cases}$$

$$b(\lambda) = b_0(\lambda)\frac{d\Phi(\lambda)}{d\Phi_0(\lambda)}.$$

S and *N* – light source (the Sun) and the receiver (observer);
ϕ_S and ϕ_N – the light source's and the photometer's latitudes; $\Delta\theta$ - the difference between longitudes of the source and the detector; **n** – normal to the sample surface;
b(λ) and *dS* – brightness and square of illuminated surface;
$d\omega$ – the receiver solid angle;
$d\Phi$ – the flux from the surface;
$d\Phi_0$ - the flux from orthotropic standard surface

Results

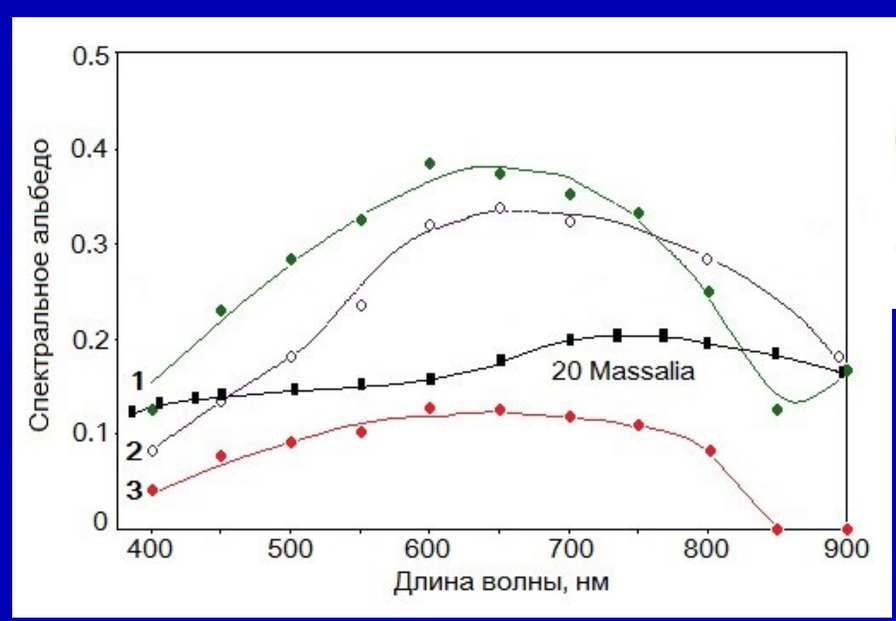


Figure 3
Spectra of basaltic lava, Teyde, Tenerife, Canary Islands
(*Murtazov, Efimov, 2016*) in comparison with the S-asteroid 20 Massalia spectrum

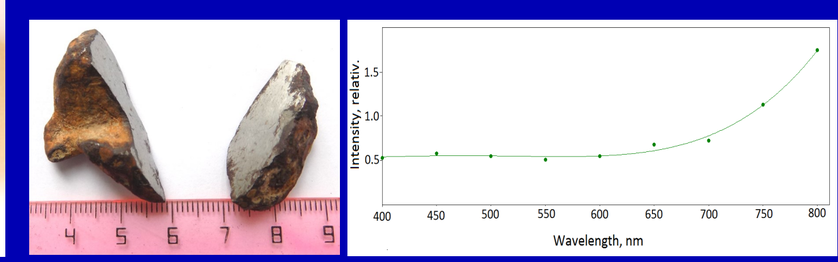


Figure 4

Fragment of iron meteorite Seymchan, Kola Peninsula, Russian Federation, 2015 (private collection)

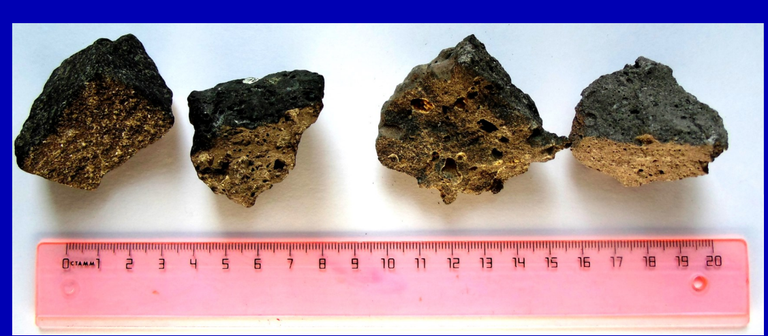
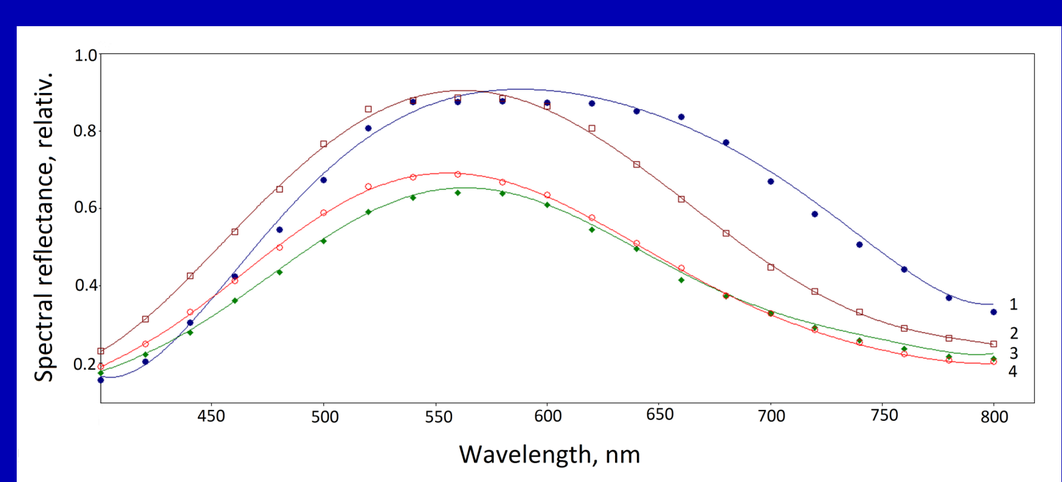


Figure 5
Basaltic rocks spectra
1. Basalt, Asatap, Armenia
2.Dolerite, Erevan, Armenia
3. Gabbro olivinic, Rudnya Shlyahovaya, Ukraine
4. Nephelinite basalt, Primorye, Russian Federation



Comparison

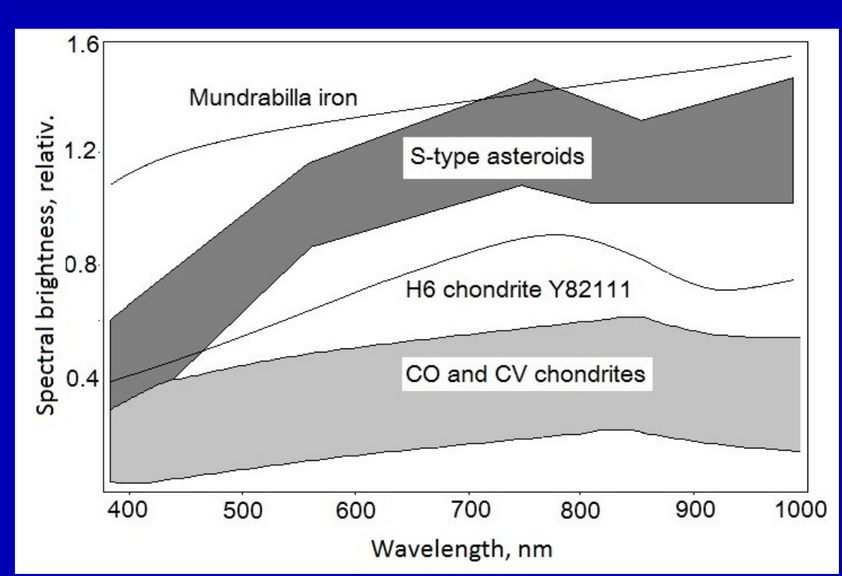


Figure 6
Relatively spectral brightness of S-asteroids (*Moroz et al., 1996; Lin et al., 2014*) and H, L, LL chondrites (*Trigo-Rodriges et al., 2013; Vernazza et al., 2008*).
Shown here for comparison (*Hiroi et al., 1993*) are: the spectrum of iron meteorite Mundrabilla (found in West Australia in 1911 г.), which does not at all coincide with the spectra of S-asteroids and stony meteorites, and the spectrum of the typical stony meteorite Yamato82111 (found in Antarctica in 1982).

References

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