

CONFERENCE  
“THE SOLAR SYSTEM BODIES: FROM OPTICS TO GEOLOGY”

May 26-29, 2008, Kharkiv, Ukraine

**Monday May 26**

**14:00 – 20:00** Registration at the Institute of Astronomy (Sumska str. 35)

**18:00 – 21:00** Welcome reception at the Institute of Astronomy

**Tuesday May 27**

**9:00 – 10:00** Registration at the Kharkiv V.N. Karazin National University (Svobodu sqr. 4)

**10:00 – 10:20** Welcome address

**10:20 – 13:30** Session I. Asteroids and Kuiper belt objects

**13:30 – 15:00** Lunch

**15:00 – 18:00** Session II. Light scattering by planetary regoliths and dust

**19:00 – 22:00** Banquet

**Wednesday May 28**

**10:00 – 13:30** Session III. Lunar and Mercury studies

**13:30 – 15:00** Lunch

**15:00 – 17:30** Session IV. Space Missions

**17:30 – 20:00** Cultural programme

**Thursday May 29**

**10:00 – 13:30** Session V. Other objects

**13:30 – 15:00** Lunch

**15:00 – 17:00** Poster session

**17:00 – 17:30** Closing address

**SCIENTIFIC PROGRAMME**

**May 27 (10.00 a.m. – 01.30 p.m.)**

**Opening** (Rector of Kharkiv University V.S. Bakirov and Director of Institute of Astronomy Y.G. Shkuratov)

**Asteroids and Kuiper belt objects** (Chairs: A. Harris and D. Lupishko)

**Harris A.**, Fahnestock E. G., Pravec P. (Invited) *On the Shapes and Spins of "Rubble Pile" Asteroids* – 30 min

**Belskaya I. N.** (Invited). *Physical Study of Trans-Neptunian Objects and Centaurs: Recent Progress* – 30 min

Bykov O.P., I.S.Izmailov, V.N.L'vov, S.D.Tsekmejster, *Fast Processing of CCD Asteroid Observations*– 15 min

**Birlan M.** *Physical Properties and Surface Composition of Main-Belt Asteroids* – 15 min

**Krugly Yu. N.**, Gaftonyuk N. M., Ďurech J., Vokrouhlicky D., Kaasalainen M., Shevchenko V. G., Ibrahimov M.A.,  
Marshalkina A., Rumyantsev V., Molotov I. E. *Photometry of Asteroids: Detection of the YORP Effect*– 15 min

*Coffee Break*

**Lupishko D. F.**, Mohamed R. A. *Asteroids 1 Ceres and 4 Vesta: What We Know about them before DAWN Mission* – 15 min

**Velichko F. P.**, Rosenbush V. K., Krugly Yu. N., Kiselev N. N., Velichko S. F., Antonyuk K. A., Shevchenko V. G., Tereschenko I. *Polarimetry and Photometry of Asteroid 4 Vesta at Southernmost Aspect of Observations* - 15 min

**Shevchenko V. G.**, Belskaya I. N., Tereschenko I. A. *Analysis of the Opposition Effect of Dark Asteroids* – 15 min

**Shor V. A.**, Kochetova O. M., Chernetenko Yu. A. *How Precise is Apophis Orbit and What is Ahead after 2029?* – 15 min

**Maccione C.** *A NASA Study Made in 2007 about Near Earth Object (NEO) Mitigation Options* – 15 min

**Kazantsev A. M.** *Spatial Separation of Asteroids with Different Albedos* – 15 min

Lunch

May 27 (03.00 p.m. – 06.00 p.m.)

**Light scattering by planetary regoliths and dust** (Chairs: M. Mishchenko and N. Kiselev)

**Mishchenko M. I.** (Invited). *Multiple Scattering by Densely Packed Discrete Random Media: Exact Results* – 30 min

**Dlugach J. M.**, Mishchenko M. I. *Weak Localization Explains Radar Observations of Saturn's Rings* – 15 min

**Déau E.**, Brahic A., Charnoz S., Porco C. C. *Comparative Study of the Saturn's Rings with Atmosphereless Solar System Satellites Using Hapke Photometric Parameters* – 15 min

**Kulyk I.** *Opposition Effect of the Saturnian Icy Satellites: Photopolarimetry at Low Phase Angles* – 15 min

**Grynyko Ye.** *DDA Simulations of Light Reflection from Rough Metallic and Dielectric Surfaces* – 15 min

Coffee Break

**Kiselev N. N.**, Rosenbush V. K., Velichko F. P., Zaitsev S. V. *Polarimetry of the Galilean Satellites and Jupiter near Opposition* – 15 min

**Pinet P. C.**, Jehl A., Daydou Y.D., Chevrel S.D., Baratoux D., Heuripeau F., Manaud N., Cord A., Neukum G. *Contribution of the Opposition Effect to the Photometric Variability Seen Across Gusev Crater from Orbit by HRSC / MARS-EXPRESS* – 15 min

**Psaryov V.A.**, Belskaya I.N., Shkuratov Yu.G., Ovcharenko A.A. *Laboratory Study of Albedo Dependence of Opposition Effect* – 15 min

**Okada Y.**, Mukai T., Mann I., Koehler M. *Extended Calculation of Polarization of Fractal Aggregates Based on Numerical Light Scattering Simulations* – 15 min

**Ugolnikov O. S.**, Maslov I. A. *Detection of Meteoric Dust and Stratospheric Aerosol in the Atmosphere by the Polarization Measurements of the Twilight Sky* – 15 min

May 28 (10.00 a.m. – 01.30 p.m.)

**Lunar and Mercury studies** (Chairs: L. Moroz and V. Kaydash)

**Ksanfomality L. V.** (Invited). *Mercury in the 210-350°w Longitude Range* – 30 min

**Moroz L. V.**, Maturilli A., Helbert J., Sasaki S., Bischoff A. *Laboratory Studies of Mercury Analogue Materials: Optical Spectroscopy and Space Weathering Simulation Experiments* – 15 min

- Kaydash V.**, Shkuratov Yu., Gerasimenko S., and AMIE/Smart-1 Team *Lunar Swirls as Seen from SMART-1: Variations of Phase Function Steepness* – 15 min
- Chevrel S. D.**, Pinet P., Souchon C, A., Daydou Y., Baratoux D., Josset J. L., Beauvivre S. *Photometric Properties of The Lunar Surface from AMIE SMART-1 Spot Pointing Observations* – 15 min
- Korokhin V. V.**, Kaydash V. G., Shkuratov Yu. G., Stankevich D. G., Mall U. *Prognosis of TiO<sub>2</sub> Abundance in Lunar Soil Using a Non-Linear Analysis of CLEMENTINE and LSCC Data* – 15 min
- Gerasimenko S.**, Kaydash V., Shkuratov Yu., Opanasenko N., Velikodsky Yu., Korokhin V. *Global Search for Photometric Anomalies of Lunar Nearside* – 15 min

*Coffee Break*

- Starukhina L.V.**, Shkuratov Yu.G. *Theoretical Modeling of Optical Maturation of Lunar and Mercurian Regolith* – 15 min
- Berezhnoy A. A.** *Lunar Exosphere during Activity of Main Meteor Showers* – 15 min
- Aarthy R. S.**, Vijayan S., Sanjeevi S., Krishnamurthy J. *Pure and Mixed Spectra of Anorthosite, Gabbro and Dunite of Salem and Namakkal Districts of Southern India* – 15 min
- Opanasenko A.**, Opanasenko N., Shkuratov Yu., Kaydash V., Velikodsky Yu., Korokhin V. *Imaging Negative Polarization Parameters of the Lunar Surface* – 15 min
- Velikodsky Yu. I.**, Opanasenko N. V., Akimov L. A., Korokhin V. V., Shkuratov Yu. G. *Absolute Photometry of the Lunar Surface* – 15 min
- Ugolnikov O. S.**, Maslov I. A. *Altitude and Latitude Distribution of Atmospheric Aerosol and Water Vapor from the Narrow-Band Lunar Eclipses Photometry* – 15 min

Lunch

**May 28** (03.00 p.m. – 05.30 p.m.)

**Space Missions** (Chairs: A. Chicarro and V. Korokhin)

- Chicarro A. F.** (Invited). *MARS EXPRESS – Science Summary in the Second Extended Mission. MARS-NEXT – A Future Step in the European Exploration of Mars* – 30 min
- Kolokolova L.** (Invited). *NASA Space Missions to Small Bodies* – 30 min
- Maccone C.** *PAC: Protected Antipode Circle on the Farside of the Moon for the Benefit of All Humankind* – 15 min
- Romanyuk Ya. O., Kleshchonok V. V., Zhilyaev B. E., Godunova V. G., Svyatogorov O. O., **Lukyanyk I. V.**, Reshetnyk V. M., Ivchenko V. M., Verlyuk I. A., Sergeev O. V., Andreev M. V., Karpov N. V., Danylevsky V. O., Lapchuk V. P., Buromsky M. I. *Project Unit: Technical Characteristics and Prospects* – 15 min
- Chernenko A.** *Investigation of the Elemental Composition of Planetary Surfaces with HPGE Gamma-Ray Spectrometers: Scientific and Engineering Issues* – 15 min
- Kolokolova L.** *NASA Planetary Data System* – 15 min

*Coffee Break*

**May 29 (10.00 a.m. – 01.30 p.m.)**

**Other objects** (Chairs: T. Kostiuk and M. Kreslavsky)

**Kostiuk T.**, Livengood T. A., Fast K. E., Hewagama T., Annen J., Buhl D., Sonnabend G., Schmölling F. (Invited).

*High Spectral Resolution Infrared Studies of Titan: Winds, Temperature and Composition* – 30 min

**Franck S.**, Bounama C., von Bloh W., Cuntz M. (Invited). *Habitability of Super-Earth Planets* – 30 min

**Kreslavsky M. A.** (Invited) *Large-Scale Topographic Roughness of Terrestrial Planets: a Comparison* – 30 min

*Coffee Break*

**Bondarenko N. V.** *Extended Crater Deposits on Venus: Integrated Analysis with Magellan Data* – 15 min

Basilevsky A. T., **Shalygin E. V.**, Titov D. V., Markiewicz W. J., Scholten F., Kreslavsky M. A. *Geologic Interpretation of the Near-Infrared Images of the Surface Taken by the Venus Monitoring Camera, VENUS EXPRESS* – 15 min

**Kornienko Yu. V.**, Dulova I. A. *Photometric Method for Determining a Planetary Surface Relief* – 15 min

**Yakovlev V.** *Large Basins of Water in Equatorial Regions of Mars* – 15 min

**Shalygina O. S.**, Zaitsev S. V., Korokhin V. V., Kiselev N. N., Shalygin E. V., Velikodsky Yu. I. *Polarimetric Observations of Jupiter's Polar Regions* – 15 min

Borysenko S. A., Sysonenko Yu. V., **Lykyanyk I. V.**, Ivanova O. V., Voyzechov's'ka A. D., Sergeeva T. P., Golovin A. *Physical Conditions in the Plasma Tail of Comet C/1987 P1 Bradfield* – 15 min

**Kolomiyets S. V.** *Orbit Complex of Meteor Bodies with Great Values of Eccentricities in the System of Small Bodies of the Solar System* – 15 min

Lunch

**May 29 (3.00 p.m. – 5.30 p.m.)**

**Poster session** (Chairs: D. Petrov and Ye. Grynko)

Alexandrov Yu.V. *Disturbed Motion of Artificial Satellite of the Moon in the Project "Ukrselena"*

Bagrov A. V., Bolgova G. T., Kartashova A. P., Leonov V. A., Sorokin N. A. *On the Origin of Wide Meteoroid Shower Perseids Produced by Multy-Stage Parent Comet Disintegration*

Bagrov A.V., Sorokin N.A., Bolgova G.T., Kartashova A.P., Leonov V.A. *Theoretical Estimation of Meteor Radiant Width for Showers Produced by Comet Disintegration*

Bellucci G., Zasova L., Nikolsky Yu., Grigoriev A., Maslov I., Patsaev D., Saggin B., Mattana A., Tarabini M., Biondi D., De Luca M. *Thermal Infrared Multispectral Mapper (TIMM) for Phobos-Grunt Project*

Bondarenko Yu.N. *What Tunguska Meteorite can not be?*

Bondarenko Yu.N. *About Structure and Evolution of Comets Kernels.*

Chubko L. S., Churyumov K.I., Kruchynenko V. G. *Formula of Dependence of Crater Diameter on Comet Nucleus from Strength of Its Matter*

Chiorny V.G. *Photometry of Small Main-Belt Asteroids: Some Results.*

Churyumov K. I., Chubko L. S., Lukyanyk I. V., Kleshchonok V. V., Sergeev A. V. *Exploration of Spectra of Comets P/2006 HR30 (Siding Spring), 17P/Holmes, 8P/Tuttle and 46P/Wirtanen Observed with 2-M Zeiss Reflector at Mount Terskol in 2007-2008*

- Grigoriev V., Korablev O. I., Montmessin F., Moshkin B. E., Patsaev D. V., Makarov V. S., Maksimenko S. V., Arnold G., Zasova L. V., Grechnev K. V., Shakun A. V., Fedorova A. A., Terentiev A. I., Ekonomov A. P., Mayorov B. S., Palomba E., Nikolskiy Yu. V., Maslov I. A., Kuzmin R. O., Bellucci G. *Fourier-Spectrometer "AOST" for Mars and Phobos Investigation in "PHOBOS-SOIL" Mission*
- Gromov V. D. *Dielectric Properties of Dust in Sub-Terahertz Region of Spectrum*
- Kazantsev A. M. *Some Peculiarities of Asteroid Size Distribution*
- Kiselev N. N., Rosenbush V. K. *Unsolved Questions in Opposition Effects of ASSBS: Future Cooperative Program "64 Angelina 2010"*
- Kolomiyets S. *Meteor science and the International Heliophysical Year 2007/9*
- Kornienko Yu. V., Skuratovskiy S.I. *On Reconstruction of Images from their Spatial Spectra*
- Kravtsov F. I., Lukyanyk I. V. *Experience of CCD-Observations of Asteroidal Occultations with the Method of Temporal Unsquashing their Images*
- Kulyk I., Korsun P. *Photometry of Distant Comet C/2003 Wt42 (LINEAR)*
- Maslov I.A. *Observations of the Comets in Near Infrared. Life: from the Comets to the Earth.*
- Petrov D. V., Shkuratov Yu. G. *Light Scattering by Merging Spheres Having Different Sizes*
- Prokofjeva-Mikhailovskaja V. V., Busarev V. V., Rublevskiy A. N. *Spectral-Frequency Method of Investigating Hydro-Silicate Spots on Surfaces of Atmosphereless Bodies*
- Rosenbush V. K., Shevchenko V. G., Kiselev N. N., Sergeev A. V., Shakhovskoy N. M., Velichko F. P., Kolesnikov S. V., Karpov N. V. *Polarimetry and Photometry of Asteroid 44 Nysa: Comparison of Opposition Effects in E-Type Asteroids.*
- Shulga O., Kozyryev Y., Sibiryakova Y. *Use of the Combined CCD Observation Method for Fast Near-Earth Objects Observation in RI NAO*
- Tereschenko I. A., Shevchenko V.G., Chiorny V.G., Krugly Yu.N., Belskaya I. N., Gaftonyuk N. M., Velichko F.P. *Observations of Brightness Behavior of Asteroids at Low Phase Angles*
- Tishkovets V. P. *Mutual Shielding of Particles in the Near Field*
- Vahidinia S., Cuzzi J., Draine B. *Regolith Radiative Transfer and Ring Particle Emissivity*
- Velichko S. F., Velichko F. P., Kuznetsov M. *Spectrometry and Polarimetry of Comet 8P/Tuttle*
- Vidmachenko A. P., Konichek V. V., Korohin V. V., Psaryov V. A., Sinelnikov I. E., Shalygin E. V. *Soft-Hardware Complex "Astronomical Panoramic Photometer-Polarimeter"*