



Biannual report Astronomical Institute of the Slovak Academy of Sciences 2012 – 2013

Institute

Mission Statement of the Institute

[1] Astronomical Institute of the Slovak Academy of Sciences (AISAS) is focused on observations and basic research in the group of sciences “Natural sciences” sub-group “Physical sciences”, branches “Astronomy”, “Astrophysics”, “Plasma physics” and “Environmental Physics”, with emphasis on research of the Sun, interplanetary matter, stars and stellar systems.

[2] AISAS provides consulting and other expertise services relating to its main specialization.

[3] AISAS organizes the postgraduate (PhD) study in astronomy and astrophysics and ensures the participation of the staff of the Institute in teaching at universities.

[4] AISAS publishes the results of its scientific activity in journals as well as in non-periodical prints and popularizes the results in media.

Basic information on the Institute:

Legal name and address

Astronomical Institute of the Slovak Academy of Sciences
05960 Tatranská Lomnica, Slovakia

URL of the institute web site

<https://www.astro.sk/>

Executive body of the institute and its composition

Director: RNDr. Aleš Kučera, CSc.

Deputy director: Doc. RNDr. Ján Svoreň, DrSc.

Scientific secretary: Mgr. Martin Vaňko, PhD. RNDr. and Drahomir Chochol, DrSc.

Astronomical Institute of the Slovak Academy of Sciences (AISAS) consists of three scientific departments: **Stellar Department, Solar Physics Department, Department of interplanetary matter**

Stellar department – research areas:

- a) study and search of exoplanets, determination of basic parameters of exoplanets and development of theoretical tools for analysis, search for young exoplanets in open galactic clusters, search for circumbinary exoplanets,
- b) study of binaries and multiple systems of stars, determination of the absolute parameters of the components of eclipsing binaries using ground-based and satellite photometric, spectroscopic, and interferometric data, study of close binaries focusing on the mass transfer and mass loss, study of cycles of stellar activity and spots,
- c) study of pre-main-sequence (T Tauri) multiple and single stars to constrain models of stellar evolution,
- d) study of the structure of active components in symbiotic stars, ionization, scattering and mass outflow by the stellar wind and jets, multifrequency

observations of classical novae, determination of their orbital periods, study of the structure of their expanding envelopes

Solar department – research areas:

- a) study of the solar photosphere and chromosphere and active events in them, using modern spectro-polarimetric, spectroscopic and photometric observations acquired with top level solar telescopes base at the Canary Islands (GREGOR, VTT, SST, THEMIS), and with space-borne satellites under own joint observing proposals,
- b) study of the solar corona and structures in it (prominences, coronal holes, coronal condensations) and Sun-Earth relations using data acquired with modern infrastructure at our Lomnický Peak Observatory, with space-borne satellites and from VSO – Virtual Solar Observatory (unique access to data from space- and ground-based observations of the Sun) and using data from solar total eclipses observations,
- c) study of evolution of fast and very powerful events in the solar atmosphere (flares, coronal mass ejections, active prominences, jets) using multiple observations from ground based and space-borne instruments,

Department of interplanetary matter – research areas:

- a) investigation of populations of small bodies in the Solar System, study of transfer orbits, interrelations and evolution among different populations regarding near-Earth objects, study of the structure of the outer part of the Oort cloud and the Edgeworth-Kuiper belt;
- b) investigation of the activity of selected cometary nuclei and its influence on physical and dynamical evolution of these bodies, photometry of asteroids and comets;
- c) study of structure and dynamics of meteoroid streams and evolution of their parent bodies, description of the distribution of meteoroid particles in the inner Solar System, search for meteoroid streams of asteroidal origin, search for hyperbolic and interstellar meteoroids, operation of the all-sky photographic cameras within the European Fireball Network; study of meteorite properties.
- d) study of the physical and chemical properties of surfaces of small bodies in the Solar System and their relevant terrestrial analogs, simulation of effects of space weathering in laboratory conditions, formation of molecules due to ion irradiation of ices relevant to Solar System bodies.

Results 2012- 2013

Scientific achievements and results gained at (AISAS) have been published mostly in top high ranked international scientific journals, presented at prestigious international conferences and significantly cited by the scientific community

Study of peculiar exoplanetary system

A peculiar exoplanetary system KIC 12557548b showing a long comet-like tail was studied using the SHELLSPEC code. The light curve has a prominent pre-transit brightening and a less prominent post-transit brightening. Both are caused by the forward scattering and are a strong function of the particle size. This feature enabled us to estimate a typical particle size (radius) in the dust tail of about 0.1-1 micron. However, there is an indication that the particle size decreases along the tail. The dust density in the tail is a steep decreasing function of the

distance from the planet, which indicates a significant tail destruction caused by the star-planet interaction. Several possible combinations of other dust properties are tabulated. We reveal interesting periodic long-term evolution of the tail on a time scale of about 1.3 years and also argue that the "planet" does not show a uniform behaviour, but may have at least two constituents.

BUDAJ, Ján. Light-curve analysis of KIC 12557548b: an extrasolar planet with a comet-like tail. In *Astronomy and Astrophysics*, 2013, vol. 557, article no. A72, p. 1-10. (5.084 - IF2012).(2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.

Determination of ionization structure of hot components in symbiotic binaries during active phases

During active phases of symbiotic binaries, an optically thick medium in the form of a flared disk develops around their hot stars. During quiescent phases, this structure is not evident. In this paper we aimed to explain how such a formation can be created during active phases. Our concept is based on the fact that during active phases the mass loss rate from the hot star (i.e. the white dwarf – WD) increases by a factor of ~10 and the assumption that the WD can rotate fast. The fast rotation of the source of the stellar wind causes its compression to the equatorial plane, where it can form a neutral disk-like region flared from its centre. The remainder of the sphere above/below the disk is ionized. Basic parameters of the model (the mass-loss rate, emission measure of the ionized zone and the hydrogen column density of the neutral zone) are in a good agreement with those derived independently from observations. During quiescent phases, the neutral disk-like structure cannot be created, because the mass-loss rate and thus the compression are insufficient. This mechanism probably represents a common origin of warm pseudophotospheres, indicated in the spectrum of active symbiotic binaries.

[4] CARIKOVÁ, Zuzana - SKOPAL, Augustín. Ionization structure of hot components in symbiotic binaries during active phases. In *Astronomy and Astrophysics*, 2012, vol. 548, article no. A21, p. 1-10. (4.587 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.

Evidence of coupling of emerging small-scale magnetic flux in photosphere with chromospheric activity

We investigated the temporal evolution of magnetic flux emergence in the quiet-Sun atmosphere close to disk centre. We combined high-resolution satellite SoHO/MDI magnetograms with satellite TRACE observations taken in the 1216 Å channel to analyze the temporal evolution of an emerging small-scale magnetic loop and its traces in the chromosphere. We find signatures of flux emergence very close to the edge of a supergranular network boundary located at disk center. The new emerging flux appeared first in the MDI magnetograms in form of an asymmetric bipolar element. The patch with negative polarity was roughly twice as weak as the corresponding patch with opposite polarity. The average values of magnetic flux and magnetic flux densities reached 1.6×10^{18} Mx - 8.5×10^{17} Mx, and 55 Mx cm^{-2} - 30 Mx cm^{-2} , respectively. The spatial distance between the opposite polarity patches of the emerged feature increased from about 2.5 to 5.0 arcseconds during the lifetime of the loop, which was 36 min. The chromospheric response to the emerged magnetic dipole occurred ~9 min later than in the photospheric magnetograms. It consisted of a quasi-periodic sequence of time-localized brightenings visible in the 1216 Å TRACE channel for ~14 min that were co-spatial with the axis connecting the two patches of opposite magnetic polarity. Thus, we identify the observed event as a small-scale magnetic loop emerging at photospheric layers that subsequently rose to the chromosphere. The fluctuations detected in the chromospheric emission probably reflect magnetic-field oscillations which propagate to the chromosphere in the form of waves.

GÖMÖRY, Peter - BALTHASAR, Horst - PUSCHMANN, Klaus Gerhard. Evidence of quiet-Sun chromospheric activity related to an emerging small-scale magnetic loop. In *Astronomy and Astrophysics*, 2013, vol. 556, article no. A7, p. 1-6. (5.084 - IF2012). (2013 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0004-6361.

Investigation of the outer parts of the Solar System

Investigation of the outer parts of the Solar System is essential for a better understanding of the processes which formed our planetary system. Modern simulations using a large number of theoretical bodies – points are performed at AISAS.

Modelling the formation of the ice giants Uranus and Neptune has been a challenging problem in planetary science for a long time. Owing to gas-drag, collisional damping, and resonant shepherding, the planetary embryos repel the planetesimals from their reach and that is why they stop growing. This problem persists independently of whether the accretion took place at the current locations of the ice giants or closer to the Sun. Instead of trying to push the runaway/oligarchic growth of planetary embryos up to 10–15 Earth masses, we envision the possibility that the planetesimal disk could generate a system of planetary embryos of only 1–3 Earth masses. Then we investigate whether these embryos could have collided with each other and grown enough to reach the masses of current Uranus and Neptune. We performed several series of numerical simulations. The dynamics of a considered set of embryos is influenced by the presence of Jupiter and Saturn, assumed to be fully formed on non-migrating orbits in 2:3 resonance, and also by gravitational interactions with the gas disk. Our results point to two major problems. First, there is typically a large difference in mass between the first- and the second-most massive core formed and retained beyond Saturn. Second, in many simulations the final planetary system has more than two objects beyond Saturn. The growth of a major planet from a system of embryos requires strong damping of eccentricities and inclinations from the gas disk. But strong damping also enables embryos and cores to find a stable resonant configuration, so that systems with more than two surviving objects are found. In addition to these problems, it is necessary to assume that the surface density of the gas was several times higher than that of the minimum-mass solar nebula to achieve substantial accretion among embryos. However, this contradicts the common idea that Uranus and Neptune formed in a gas-starving disk, which is suggested by the relatively small amount of hydrogen and helium contained in the atmospheres of these planets. Only one of our simulations serendipitously reproduced the structure of the outer Solar System successfully. However, we point out that models of formation of Uranus and Neptune have non-trivial problems, which cannot be ignored and have to be addressed in future work

JAKUBÍK, Marián - MORBIDELLI, Alessandro - NESLUŠAN, Luboš - BRASSER, Ramon. The accretion of Uranus and Neptune by collisions among planetary embryos in the vicinity of Jupiter and Saturn. In *Astronomy and Astrophysics*, 2012, vol. 540, article no. A71, p. 1-16. (4.587 - IF2011). (2012 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0004-6361.

Structure of the complex of meteoroid particles released from comet 96P/Machholz

The structure of the complex of meteoroid particles released from comet 96P/Machholz is studied to reveal a relationship among the meteor showers observed in the Earth's atmosphere that belong to this complex. For eight perihelion passages of the parent comet in the past, we model theoretical streams associated with comet 96P and follow their dynamical evolution until the present. Subsequently, we analyze the orbital characteristics of the streams, especially of their parts approaching the Earth's orbit. The dynamics of the stream is controlled by Jupiter, which changes the initial orbits of the particles into the orbits situated within several specific corridors. It thus creates a filamentary structure of the complex. Six

filaments approach the orbit of the Earth producing four well-known meteor showers and two showers, whose identification with κ -Velids and α -Cetids is not certain. The known showers, in order of the predicted abundance of meteors, are daytime Arietids, Southern δ -Aquadrids, Quadrantids, and Northern δ -Aquadrids. The filaments corresponding to the Arietids, δ -Aquadrids S and N, and possibly α -Cetids constitute the ecliptical component and those corresponding to the Quadrantids and possibly κ -Velids constitute the toroidal component of the complex

NESLUŠAN, Luboš - KAŇUCHOVÁ, Zuzana - TOMKO, Dušan. The meteor-shower complex of 96P/Machholz revisited. In *Astronomy and Astrophysics*, 2013, vol. 551, article no. A87, p. 1-14. (5.084 - IF2012). (2013 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0004-6361.

Binary asteroid population in main-belt of Solar System

Our photometric observations of 18 main-belt binary systems in more than one apparition revealed a strikingly high number of 15 having positively re-observed mutual events in the return apparitions. Our simulations of the survey showed that it cannot be due to an observational selection effect and that the data strongly suggest that poles of mutual orbits between components of binary asteroids in the primary size range 3–8 km are not distributed randomly: The null hypothesis of anisotropic distribution of the orbit poles is rejected at a confidence level greater than 99.99%. Binary orbit poles concentrate at high ecliptic latitudes, within 30° of the poles of the ecliptic. We propose that the binary orbit poles oriented preferentially up/down-right are due to either of the two processes: (i) the YORP tilt of spin axes of their parent bodies toward the asymptotic states near obliquities 0 and 180° (pre-formation mechanism), or (ii) the YORP tilt of spin axes of the primary components of already formed binary systems toward the asymptotic states near obliquities 0 and 180° (post-formation mechanism). The alternative process of elimination of binaries with poles closer to the ecliptic by the Kozai dynamics of gravitational perturbations from the sun does not explain the observed orbit pole concentration as in the close asteroid binary systems the J2 perturbation due to the primary dominates the solar-tide effect

PRAVEC, Petr - SCHEIRICH, Petr - VOKROUHLICKÝ, David - HARRIS, Alan W. - KUŠNIRÁK, Peter - HORNOCH, Kamil - PRAY, Donald P. - HIGGINS, David - GALÁD, Adrián - VILÁGI, Jozef - GAJDOŠ, Štefan - KORNOS, Leoš - OEY, Julian - HUSÁRIK, Marek - COONEY, Walter R. Jr. - GROSS, John - TERRELL, Dirk - DURKEE, Russ - POLLOCK, Joseph - REICHART, Daniel - IVARSEN, Kevin - HAISLIP, Josh - LA CLUYZE, Aaron - KRUGLY, Yuriy N. - GAFTONYUK, Ninel - STEPHENS, Robert D. - DYVIG, Ron - REDDY, Vishnu - CHIorny, Vasilij - VADUVESCU, Ovidiu - LONGA-PEÑA, Penélope - TUDORICA, Alexandru - WARNER, Brian D. - MASI, Gianluca - BRINSFIELD, James - GONCALVES, Rui - KRZEMINSKI, Zbigniew - GERASHCHENKO, Oleg - SHEVCHENKO, Valeri - MOLOTOV, Igor - MARCHIS, Franck. Binary asteroid population. 2. Anisotropic distribution of orbit poles of small, inner main-belt binaries. In *Icarus*, 2012, vol. 218, p. 125-143. (3.385 - IF2011). (2012 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0019-1035.

First time determination of metallicity of 90 binaries (W UMa type)

About 4500 spectra collected at the David Dunlap Observatory were analysed to determine metallicity of 90 W UMa type binaries for the first time. The logarithmic relative metallicities, $[M/H]$, for the F-type sub-sample indicate metal abundances roughly similar to the solar metallicity, but with a large scatter which is partly due to combined random and systematic errors. A parallel study of kinematic data, utilizing the most reliable and recently obtained proper motion and radial velocity data for 78 binaries of the full sample, shows that the F-type sub-sample binaries (44 stars with both velocities and metallicity

determinations) have similar kinematic properties to solar-neighbourhood, thin-disk dwarfs. FU Dra with a large spatial velocity, $V = 197$ km/s and $[M/H] = -0.6 \pm 0.2$, appears to be the only thick-disk object in the F-type sub-sample. The kinematic data indicate that the F-type EW binaries are typical, thin-disk population stars with ages about 3-5.5 Gyr.

RUCINSKI, Slavek M. - PRIBULLA, Theodor - BUDAJ, Ján. Spectroscopic metallicity determinations for W UMa-type binary stars. In *The Astronomical Journal*, 2013, vol. 146, article no. 70, p. 1-20. (4.965 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6256.

A quiescent prominence observed in the H-alpha line by the COMP-S instrument at the Lomnický Peak Observatory

A prominence above the NEE limb was observed by the COMP-S instrument attached to the ZEISS coronagraph located at the Lomnický Peak Observatory. The filter of the instrument was tuned during measurements sequentially in five wavelengths within the profile of the H α line: 0, ± 1 , ± 2 Å around 6563 Å. FWHM of the transmission function of the filter was ≈ 0.4 Å at these wavelengths. Data were fitted using a simple cloud model (1D geometry, a complete frequency redistribution, a source function independent of the optical depth) to diagnose the prominence plasma. Five positions at the prominence were chosen for simulation using the cloud model and groups of different models were found for each position. Simulating observations using three different finer wavelength scales it was found that the wavelength scale with a step of 0.3 Å and even more finer in the line core (step of 0.1 Å) is already suitable for more precise and unambiguous plasma diagnostics. We also show that for correct plasma diagnostics it is crucial to take into account an effect of a finite width of the transmission function of the filter. If observed data were fitted irrespectively of this important effect, an error in estimated model parameters could exceed even 100 %, except for the Doppler velocities, for which the error would be much smaller, e.g. for velocities up to 20 km s⁻¹ the error is below 1 %.

SCHWARTZ, Pavol - RYBÁK, Ján - KUČERA, Aleš - KOZÁK, Matúš - AMBRÓZ, Jaroslav - GÖMÖRY, Peter. A quiescent prominence observed in the H-alpha line by the COMP-S instrument at the Lomnický Peak Observatory. In *Contributions of the Astronomical Observatory Skalnaté Pleso*, 2012, vol. 42, p. 135-146. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.

Strong constraints on the third light (reflection nebula + stellar components) in eclipsing TY CrA system

Hierarchical eclipsing system TY CrA system is observed photometrically in the visual range (VYSOS6) and in the near-infrared (SOFI, REMIR) in Chile. The infrared observations show the secondary minimum and enable reliable parameter determination and set strong constraints on the third light (reflection nebula + stellar components). The absolute parameters of the inner eclipsing binary agree very well with previous work except of the primary radius ($1.46 \pm 0.15 R_{\odot}$) and luminosity ($40 \pm 10 L_{\odot}$) which are clearly smaller. While the parameters of the secondary are well understood when assuming an age of about 3-5 Myr, the primary seems considerably undersized. Low metallicity cannot explain the parameters of the primary

VANĀKO, Martin - AMMLER-VON EIFF, Matthias - PRIBULLA, Theodor - CHINI, Rolf - COVINO, Elvira - NEUHÄUSER, Ralph. The eclipsing binary TY CrA revisited: what near-IR light curves tell us. In *Monthly Notices of the Royal Astronomical Society*, 2013, vol. 431, p. 2230-2239. (5.521 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0035-8711.

Inter-discipline fundamental research result

Employing the structure of the split Cayley hexagon of order two, a distinguished subgeometry of the symplectic polar space $W(5, 2)$ of the three-qubit Pauli group, we got an intriguing finite-geometric insight into the nature of a couple of 'magic' three-qubit configurations proposed recently by Waegell and Aravind [1]. Mermin's pentagram, a specific set of ten three-qubit observables used to provide a very simple proof of the Kochen-Specker theorem, was also shown to be isomorphic to an ovoid (elliptic quadric) of the three-dimensional projective space of order two [2]. The geometry of the real four-qubit Pauli group, being embodied in the structure of the symplectic polar space $W(7,2)$, was analyzed in terms of ovoids of a hyperbolic quadric of the seven-dimensional projective space of order two. The quadric was selected in such a way that it contains all 135 symmetric elements of the group. Under such circumstances, the third element on the line defined by any two points of an ovoid is skew-symmetric, as is the nucleus of the conic defined by any three points of an ovoid. The strategy we employed was completely novel and unique in its nature, as were the results obtained [3]. We further invoked some ideas from finite geometry to map bijectively 135 heptads of mutually commuting three-qubit observables into 135 symmetric four-qubit ones. After labeling the elements of the former set in terms of a seven-dimensional Clifford algebra, we presented the bijective map and most pronounced actions of the associated symplectic group on both sets in explicit forms. This formalism was then employed to shed novel light on recently-discovered structural and cardinality properties of an aggregate of three-qubit Mermin's 'magic' pentagrams. Moreover, some intriguing connections with the so-called black-hole--qubit correspondence were also pointed out [4].

[1] SANIGA, Metod - PLANAT, Michel - PRACNA, Petr - LÉVAY, Péter. 'Magic' configurations of three-qubit observables and geometric hyperplanes of the smallest Split Cayley Hexagon. In *Symmetry, Integrability and Geometry: Methods and Applications*, 2012, vol. 8, article no. 083, p. 1-9. (1.071 - IF2011). (2012 - Current Contents, SCOPUS). ISSN 1815-0659.

[2] SANIGA, Metod - LÉVAY, Péter. Mermin's pentagram as an ovoid of $PG(3,2)$. In *EPL - Europhysics Letters*, 2012, vol. 97, article no. 50006, p. 1-3. (2.171 - IF2011). (2012 - Current Contents, SCOPUS). ISSN 0295-5075.

[3] SANIGA, Metod - LÉVAY, Péter - PRACNA, Petr. Charting the real four-qubit Pauli group via ovoids of a hyperbolic quadric of $PG(7,2)$. In *Journal of Physics A: Mathematical and Theoretical*, 2012, vol. 45, article no. 295304, p. 1-16. (1.564 - IF2011). (2012 - Current Contents, WOS, SCOPUS). ISSN 1751-8113.

[4] LÉVAY, Péter - PLANAT, Michel - SANIGA, Metod. Grassmannian connection between three- and four-qubit observables, Mermin's contextuality and black holes. In *Journal of High Energy Physics*, 2013, no. 09, article no. 037, p. 1-34. (5.618 - IF2012). (2013 - Current Contents, WOS, SCOPUS). ISSN 1126-6708.

International projects - grants: 2012- 2013

Project title: Polarization as a tool to study the Solar System and beyond

Type/ Project number: MPNS COST Action MP1104

Duration: 11/2012-11/2015

Responsible person: Partner- Coordinator for Slovakia/ A. Kučera - scientist in charge

Project title: SOLARNET- High-Resolution Solar Physics Network

Type/ Project number: 7 RP/FP7-INFRA-312495

Duration: 04/2013-03/2017

Responsible person: Partner/ A. Kučera - scientist in charge

Project title: Impulsively generated waves in radio and X-ray ranges of the electromagnetic spectrum detected in the solar corona

Type/ Project number: MAD SK-CZ

Duration: 01/2012-12/2014

Responsible person: Coordinator / J. Rybák

Project title: Plasma diagnostics of EIT waves and flares on the Sun

Type/ Project number: MVD APVV SK-AT-0003-12 SK 16/2013

Duration: 01/2013-12/2014

Responsible person: Coordinator / P. Gömöry

Project title: Dynamics and magnetic field topology of small-scale loops

Type/ Project number: 7 RP SOLARNET Trans-nat. access programme:

VTT - Ref. nr.: 13-05

Duration: 10/2013-10/2013

Responsible person: Coordinator / P. Gömöry

Project title: Finite Geometries Behind the Black–Hole–Qubit Correspondence

Type/ Project number: MFO-RiP-2013-LPS

Duration: 02/2013-03/2013

Responsible person: Coordinator / M. Saniga

Project title: Total Solar Eclipse in Gabon at Sunspot-Cycle maximum

Type/ Project number: National Geographic Society NGS-9312-13

Duration: 10/2013-12/2013

Responsible person: Coordinator / V. Rušin

Project title: Studying the nature of outbursts of symbiotic stars

Type/ Project number: MAD SK-BG-0015-10

Duration: 01/2012-12/2013

Responsible person: Coordinator / A. Skopal

Project title: Investigation of emerging magnetic flux in the quiet photosphere of the Sun

Type/ Project number: DFG - Germany BA 1875/7-1

Duration: 07/2011-06/2012

Responsible person: Partner/ P. Gömöry - scientist in charge

Project title: Understanding the evolution of the very young stars -- multiple data sets solution of the young eclipsing binary TY CrA

Type/ Project number: DFG - Germany AM 158/3-1

Duration: 01/2012-12/2012

Responsible person: Partner/ M. Vaňko- scientist in charge

Project title: Multiwavelength modeling the spectral energy distribution of the supersoft X-ray sources

Type/ Project number: Alexander von Humboldt Foundation SLA/1039115

Duration: 0/2012-04/2012

Responsible person: Coordinator/ A. Skopal

Project title: Multifaceted observations of the solar corona during the 13 November 2012 total eclipse in Australia

Type/ Project number: National Geographic Society NGS-3139-12

Duration: 11/2012-11/2012

Responsible person: Coordinator/ V. Rušin

International visits of the institute YEAR-2013

Country	Type of visits					
	Projects		Bilateral		Other	
	Name	Days	Name	Days	Name	Days
Czech republic	Meszárosová Hana	15			Jelínek Peter	5
					Krejčová Tereza	6
					Krejčová Tereza	12
					Krejčová Tereza	6
					Krejčová Tereza	6
				Mikulášek Zdeněk	15	
Egypt	Awadalla Nabil	7				
	Hanna Magdy	7				
Hungary					Levay Peter	6
Germany					Balthasar Horst	8
Austria	Su Yang	5				
	Temmer Manuela	5				
	Utz Dominik	5				
	Vanninathan K.	5				
	Veronig Astrid	5				
Russia	Romanjuk Josif	21			Golysheva Polina	20
					Katysheva Natalia	27

Spain					Ariste Arturo Lopez	5
Italy					Munari Ulise	7
Ukraine					Breus Vitalii	154
					Ivanova Alexandra	7
					Tarasova T.	13
Total	9	75			15	297

YEAR 2012

Country	Type of visits					
	Projects		Bilateral		Other	
	Name	Days	Name	Days	Name	Days
Bulgaria	Tomov Nikolai	14				
Czech Republic	Meszárosová Hana	11			Heinzel Petr	5
	Pracna Petr	12			Krejčová Tereza	16
					Krejčová Tereza	12
					Krejčová Tereza	90
					Krejčová Tereza	6
					Mikulášek Zdeněk	10
					Pracna Petr	62
					Štěpán Jiří	5
Egypt	Awadalla Nabil	14				
	Hanna Magdy	14				
Japan					Hachisu Izumi	9
					Kato Mariko	9
Austria					Fleslich Heindrich	5
					Poetzi Werner	5
Russia	Romanjuk Iosiph	21			Katysheva Natalia	210
	Semenko Evgenij	21			Volkov Igor	244
Ukraine					Breus Vitalii	3
					Pavlenko Olena	91
Total	7	107			16	782

List of publications

YEAR 2013

ADCA Scientific papers in international scientific journals with impact factor

- ADCA01 ALLODI, Marco A. - BARAGIOLA, Raul A. - BARATTA, Giuseppe Antonio - BARUCCI, Maria Antonella - BLAKE, Geoffrey A. - BODUCH, Philippe - BRUCATO, John R. - CONTRERAS, Cesar - CUYLLE, Steven H. - FULVIO, Daniele - GUDIPATI, Murthy S. - IOPPOLO, Sergio - KAŇUCHOVÁ, Zuzana - LIGNELL, Antti - LINNARTZ, Harold - PALUMBO, Maria Elisabetta - RAUT, Ujjwal - ROTHARD, Hermann - SALAMA, Farid - SAVCHENKO, Elena V. - SCIAMMA-O'BRIEN, Ella - STRAZZULLA, Giovanni. Complementary and emerging techniques for astrophysical ices processed in the laboratory. In Space Science Reviews, 2013, vol. 180, no. 1-4, p. 101-175. (5.519 - IF2012). (2013 - Current Contents). ISSN 0038-6308.
- ADCA02 BARSUNOVA, Olga Yu. - MEL'NIKOV, Stanislav Yu. - GRININ, Vladimir P. - KATYSHEVA, Natalia A. - SHUGAROV, Sergey Yu.. Photometric activity of the Herbig Be star MWC 297 over 25 years. In Astronomy Reports, 2013, vol. 57, no. 2, p. 89-94. (0.756 - IF2012). (2013 - Current Contents, EBSCO, SCOPUS, NASA ADS). ISSN 1063-7729.
- ADCA03 BOROVIČKA, Jiří - TÓTH, Juraj - IGAZ, Antal - SPURNÝ, Pavel - KALENDA, Pavel - HALODA, Jakub - SVOREŇ, Ján - KORNOŠ, Leoš - SILBER, Elizabeth - BROWN, Peter - HUSÁRIK, Marek. The Košice meteorit fall: Atmospheric trajectory, fragmentation, and orbit. In Meteoritics and Planetary Science, 2013, vol. 48, no. 10, p. 1757-1779. (2.800 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 1086-9379.
- ADCA04 BUDAJ, Ján. Light-curve analysis of KIC 12557548b: an extrasolar planet with a comet-like tail. In Astronomy and Astrophysics, 2013, vol. 557, article no. A72, p. 1-10. (5.084 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA05 ERRMANN, Ronny - NEUHÄUSER, Ralph - MARSCHALL, Laurence - TORRES, Guillermo - MUGRAUER, Markus - CHEN, Wen-Ping - HU, Seline Chia-Ling - BRICENO, Cesar - CHINI, Rolf - BUKOWIECKI, Lukasz - DIMITROV, Dinko - KJURKCHIEVA, Diana P. - JENSEN, Eric L.N. - COHEN, David H. - WU, Zhen-Yu - PRIBULLA, Theodor - VAŇKO, Martin - KRUSHEVSKA, Victoria - BUDAJ, Ján - OASA, Yumiko - PANDEY, Anil K. - FERNANDEZ, Matilde - KELLERER, Aglae - MARKA, Claudia. The stellar content of the young open cluster Trumpler37. In Astronomische Nachrichten, 2013, vol. 334, no. 7, p. 673-681. (1.399 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6337.
- ADCA06 ESIPOV, Valentin F. - KOLOTILOV, Eugene - KOMISSAROVA, Galina - SHENAVRIN, Viktor, I. - SHUGAROV, Sergey Yu. - TARASOVA, Taissii Natasha - TATARNIKOV, Andrey M. - TATARNIKOVA, Anna A. Four states of the recurrent symbiotic nova V407 Cyg. In Astronomische Nachrichten, 2013, vol. 334, no. 8, p. 810-813. (1.399 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6337.
- ADCA07 GÖMÖRY, Peter - BALTHASAR, Horst - PUSCHMANN, Klaus Gerhard. Evidence of quiet-Sun chromospheric activity related to an emerging small-scale magnetic loop. In Astronomy and Astrophysics, 2013, vol. 556, article no. A7, p. 1-

6. (5.084 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA08 GREEN, Richard M. - SANIGA, Metod. The Veldkamp space of the smallest slim dense near hexagon. In International Journal of Geometric Methods in Modern Physics, 2013, vol. 10, no. 2, article no. 1250082, p. 1-15. (0.951 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS ; 2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0219-8878.
- ADCA09 HAJDUKOVÁ, Mária, Jr.. Long-period meteor streams and the dispersion of semimajor axes of meteor orbits. In Publications of the Astronomical Society of Japan, 2013, vol. 65, article no. 67, p. 1-4. (2.439 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6264.
- ADCA10 HANUŠ, Josef - ĎURECH, Josef - BROŽ, Miroslav - MARCINIAK, Anna - WARNER, Brian D. - PILCHER, Frederick - STEPHENS, Robert D. - BEHREND, Raoul - CARRY, Benoit - ČAPEK, David - ANTONINI, Pierre - AUDEJEAN, Marice - AUGUSTESEN, Karl - BARBOTIN, Eric - BAUDOIN, Philippe - BAYOL, Amélie - BERNASCONI, Laurent - BORCZYK, Wojciech - BOSCH, Jean-Gabriel - BROCHARD, Emmanuel - BRUNETTO, Laurent - CASULLI, Silvano - CAZENAVE, Audray - CHARBONNEL, Stéphane - CHRISTOPHE, Bernard - COLAS, Francois - COLOMA, Josep - CONJAT, Mathieu - COONEY, Walter R. Jr. - CORREIRA, Horacio - COTREZ, Vincent - COUPIER, Amandine - CRIPPA, Roberto - CRISTOFANELLI, Marco - DALMAS, Charlotte - DANAVARO, Cécile - DEMEAUTIS, Christophe - DROEGE, Tom - DURKEE, Russ - ESSEIVA, Nicolas - ESTEBAN, Mateu - FAGAS, Monika - FAUVAUD, Marcel - FAUVAUD, Stéphane - DEL FREO, Florent - GARCIA, Adriana - GEIER, Stefan - GODON, Clémence - GRANGEON, Karen - HAMANOWA, Hiroko - HAMANOWA, Hiromi - HECK, N. - HELLMICH, Stephan - HIGGINS, David - HIRSCH, Roman - HUSÁRIK, Marek - ITKONEN, Tommi - JADE, Olivier - KAMIŃSKI, Krzysztof - KANKIEWICZ, Pawel - KLOTZ, Alain - KOFF, Robert A. - KRYSZCZYŃSKA, Agnieszka - KWIATKOWSKI, Tomasz - LAFFONT, Alain - LEROY, Arnaud - LECACHEUX, Jean - LEONIE, Yannick - LEYRAT, Cedric - MANZINI, Federico - MARTIN, Axel - MASI, Gianluca - MATTER, Daniel - MICHAŁOWSKI, Jerzy - MICHAŁOWSKI, Michal J. - MICHAŁOWSKI, Tadeusz - MICHELET, Jacques - MICHELSEN, René - MORELLE, Etienne - MOTTOLA, Stefano - NAVES, Ramon - NOMEN, Jaime - OEY, Julian - OGLOZA, Waldemar - OKSANEN, Arto - OSZKIEWICZ, Dagmara - PÄÄKKÖNEN, Pertti - PAIELLA, Marco - PALLARES, Hilari - PAULO, Julien - PAVIC, Marinko - PAYET, Bruno - POLIŃSKA, Magdalena - POLISHOOK, David - PONCY, Raymond - REVAZ, Yves - RINNER, Claudine - ROCCA, Magali - ROCHE, Alexia - ROMEUF, David - ROY, Rene - SAGUIN, H. - SALOM, Pere Antoni - SANCHEZ, Salvador - SANTACANA, Gilles - SANTANA-ROS, Toni - SAREYAN, Jean-Pierre - SOBKOWIAK, Krzysztof - SPOSETTI, Stefano - STARKEY, Donn - STOSS, Reiner - STRAJNIC, Jean - TENG, Jean-Paul - TRÉGON, Bernard - VAGNOZZI, Antonio - VELICHKO, Feodor P. - WAELCHLI, Nicolas - WAGREZ, Kevin - WÜCHER, Harvé. Asteroids' physical models from combined dense and sparse photometry and scaling of the YORP effect by the observed obliquity distribution. In Astronomy and Astrophysics, 2013, vol. 551, article no. A67, p. 1-16. (5.084 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA11 KATO, Taichi - HAMBSCHE, Franz-Josef - MAEHARA, Hiroyuki - MASI, Gianluca - MILLER, Ian - NOGUCHI, Ryo - AKASAKA, Chihiro - AOKI, Tomoya - KOBAYASHI, Hiroshi - MATSUMOTO, Katsura - NAKAGAWA, Shinichi -

- NAKAZATO, Takuma - NOMOTO, Takashi - OGURA, Kazuyuki - ONO, Rikako - TANIUCHI, Keisuke - STEIN, William - HENDEN, Arne - DE MIGUEL, Enrique - KIYOTA, Seiichiro - DUBOVSKÝ, Pavol - KUDZEJ, Igor - IMAMURA, Kazuyoshi - AKAZAWA, Hidehiko - TAKAGI, Ryosuke - WAKABAYASHI, Yuya - OGI, Minako - TANABE, Kenji - ULOWETZ, Joseph - MORELLE, Etienne - PICKARD, Roger - OHSHIMA, Tomohito - KASAI, Kiyoshi - PAVLENKO, Elena - ANTONYUK, Oksana I. - BAKLANOV, Aleksei - ANTONYUK, Kirill - SAMSONOV, Denis A. - PIT, Nikolai - SOSNOVSKIJ, Aleksei - LITTLEFIELD, Colin - SABO, Richard - RUIZ, Javier - KRAJCI, Thomas - DVORAK, Shawn - OKSANEN, Arto - HIROSAWA, Kenji - GOFF, William N. - MONARD, Berto - SHEARS, Jeremy - BOYD, David - VOLOSHINA, Irina - SHUGAROV, Sergey Yu. - CHOCHOL, Drahomír - MIYASHITA, Atsushi - PIETZ, Jochen - KATYSHEVA, Natalia A. - ITOH, Hiroshi - BOLT, Greg - ANDREEV, Maksim V. - PARAKHIN, Nikolay A. - MALANUSHENKO, Viktor - MARTINELLI, Fabio - DENISENKO, Denis - STOCKDALE, Chris - STARR, Peter - SIMONSEN, Mike - TRISTRAM, Paul J. - FUKUI, Akihiko - TORDAI, Tamas - FIDRICH, Robert - PAXSON, Kevin B. - ITAGAKI, Koh-ichi - NAKASHIMA, Youichirou - YOSHIDA, Seiichi - NISHIMURA, Hideo - KRYACHKO, Timur V. - SAMOKHVALOV, Andrey V. - KOROTKIY, Stanislav A. - SATOVSKI, Boris L. - STUBBINGS, Rod - POYNER, Gary - MUYLLAERT, Eddy - GERKE, Vladimir - MACDONALD II, Walter - LINNOLT, Michael - MAEDA, Yutaka - HAUTECLER, Hubert. Survey period variations of superhumps in SU UMa-type dwarf novae : IV. The fourth year (2011-2012). In Publications of the Astronomical Society of Japan, 2013, vol. 65, article no. 23, p. 1-76. (2.439 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6264.
- ADCA12 KERVELLA, Pierre - MÉRAND, Antoine - PETR-GOTZENS, Monika - PRIBULLA, Theodor - THÉVENIN, Frederic. The nearby eclipsing stellar system Delta Velorum. IV. Differential astrometry with VLT/NACO at the 100 microarcsecond level. In Astronomy and Astrophysics, 2013, vol. 552, article no. A18, p. 1-7. (5.084 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA13 KOTRČ, Pavel - BÁRTA, Miroslav - SCHWARTZ, Pavol - KUPRYAKOV, Yuriy Alexejevič - KASHAPOVA, Larisa K. - KARLICKÝ, Marian. Modeling of H_α eruptive events observed at the solar limb. In Solar Physics, 2013, vol. 284, p. 447-466. (3.256 - IF2012). (2013 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0038-0938.
- ADCA14 KUNDRA, Emil - HRIC, Ladislav - GÁLIS, Rudolf. Pulsation of IU Per from the ground-based and 'integral' photometry. In Baltic Astronomy : an international journal, 2013, vol. 22, p. 111-122. (0.416 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 1392-0049.
- ADCA15 LÉVAY, Péter - PLANAT, Michel - SANIGA, Metod. Grassmannian connection between three- and four-qubit observables, Mermin's contextuality and black holes. In Journal of High Energy Physics, 2013, no. 09, article no. 037, p. 1-34. (5.618 - IF2012). (2013 - Current Contents, WOS, SCOPUS). ISSN 1126-6708.
- ADCA16 MACIEJEWSKI, Gracjan - NIEDZIELSKI, Andrzej - WOLSZCZAN, Aleksander - NOWAK, Grzegorz - NEUHÄUSER, Ralph - WINN, Josh N. - DEKA, Beata - ADAMÓW, Monika - GÓRECKA, Michalina - FERNANDEZ, Matilde - ACEITUNO, Francisco José - OHLERT, Johannes - ERRMANN, Ronny - SEELIGER, Martin - DIMITROV, Dinko - LATHAM, Dave W. - ESQUERDO, Gilbert A. - MCKNIGHT, Laura - HOLMAN, Matthew J. - JENSEN, Eric L.N. -

- ADCA17 KRAMM, Ulrike - PRIBULLA, Theodor - RAETZ, Stefanie - SCHMIDT, Tobias O.B. - GINSKI, Christian - MOTTOLA, Stefano - HELLMICH, Stephan - ADAM, Christian - GILBERT, Holly - MUGRAUER, Markus - SARAL, Gozde - POPOV, Velimir - RAETZ, Manfred. Constraints on a second planet in the WASP-3 system. In *The Astronomical Journal*, 2013, vol. 146, article no. 147, p. 1-12. (4.965 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6256.
- ADCA18 MACIEJEWSKI, Gracjan - DIMITROV, Dinko - SEELIGER, Martin - RAETZ, Stefanie - BUKOWIECKI, Lukasz - KITZE, Manfred - ERRMANN, Ronny - NOWAK, Grzegorz - NIEDZIELSKI, Andrzej - POPOV, Velimir - MARKA, Claudia - GOŹDZIEWSKI, Krzysztof - NEUHÄUSER, Ralph - OHLERT, Johannes - HINSE, Tobias Cornelius - LEE, Jae Woo - LEE, Chung-Uk - YOON, Joh-Na - BERNDT, Alexandra - GILBERT, Holly - GINSKI, Christian - HOHLE, Markus M. - MUGRAUER, Markus - RÖLL, Tristan - SCHMIDT, Tobias O.B. - TETZLAFF, Nina - MANCINI, Luigi - SOUTHWORTH, John - DALL'ORA, Massimo - CICERI, Simona - ZAMBELLI, Roberto - CORFINI, Giorgio - TAKAHASHI, Hidenori - TACHIHARA, Kengo - BENKÖ, Jozsef M. - SÁRNECZKY, Krisztian - SZABO, Gyula M. - VARGA, Tamas N. - VAŇKO, Martin - JOSHI, Yogesh C. - CHEN, Wen-Ping. Multi-site campaign for transit timing variations of WASP-12b: possible detection of a long-period signal of planetary origin. In *Astronomy and Astrophysics*, 2013, vol. 551, article no. A108, p. 1-16. (5.084 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA19 NESLUŠAN, Luboš - HAJDUKOVÁ, Mária, Jr. - JAKUBÍK, Marián. Meteor-shower complex of asteroid 2003 EH1 compared with that of comet 96P/Machholz. In *Astronomy and Astrophysics*, 2013, vol. 560, article no. A47, p. 1-10. (5.084 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA20 NESLUŠAN, Luboš - SVOREŇ, Ján - PORUBČAN, Vladimír. The method of selection of major-shower meteors revisited: The selection from the photographic, video, and radio databases. In *Earth, Moon, and Planets*, 2013, vol. 110, p. 41-66. (0.830 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0167-9295.
- ADCA21 NESLUŠAN, Luboš - KAŇUCHOVÁ, Zuzana - TOMKO, Dušan. The meteor-shower complex of 96P/Machholz revisited. In *Astronomy and Astrophysics*, 2013, vol. 551, article no. A87, p. 1-14. (5.084 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA22 PLANAT, Michel - SANIGA, Metod - HOLWECK, Frédéric. Distinguished three-qubit 'magicity' via automorphisms of the split Cayley hexagon. In *Quantum Information Processing*, 2013, vol. 12, p. 2535-2549. (1.748 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS ; 2013 - Current Contents, SCOPUS, NASA ADS). ISSN 1570-0755.
- ADCA23 RUCINSKI, Slavek M. - PRIBULLA, Theodor - BUDAJ, Ján. Spectroscopic metallicity determinations for W UMa-type binary stars. In *The Astronomical Journal*, 2013, vol. 146, article no. 70, p. 1-20. (4.965 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6256.
- ADCA24 SKOPAL, Augustín - TOMOV, Toma - TOMOVA, M.T. Discovery of collimated ejection from the symbiotic binary BF Cygni. In *Astronomy and Astrophysics*, 2013, vol.551, article no. L10, p. 1-4. (5.084 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA25 VAŇKO, Martin - AMMLER-VON EIFF, Matthias - PRIBULLA, Theodor - CHINI, Rolf - COVINO, Elvira - NEUHÄUSER, Ralph. The eclipsing binary TY CrA revisited: what near-IR light curves tell us. In *Monthly Notices of the Royal*

- Astronomical Society, 2013, vol. 431, p. 2230-2239. (5.521 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0035-8711.
- ADCA25 VAŇKO, Martin - MACIEJEWSKI, Gracjan - JAKUBÍK, Marián - KREJČOVÁ, Tereza - BUDAJ, Ján - PRIBULLA, Theodor - OHLERT, Johannes - RAETZ, Stefanie - PARIMUCHA, Štefan - BUKOWIECKI, Lukasz. Photometric follow-up of the transiting planetary system TrES-3: transit timing variation and long-term stability of the system. In Monthly Notices of the Royal Astronomical Society, 2013, vol. 432, p. 944-953. (5.521 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0035-8711.
- ADCA26 ZEMKO, Polina - KATO, Taichi - SHUGAROV, Sergey Yu.. Detection of change in supercycles in ER Ursae Majoris. In Publications of the Astronomical Society of Japan, 2013, vol. 65, article no. 54, p. 1-8. (2.439 - IF2012). (2013 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6264.

ADEB Scientific papers in other foreign journals

- ADEB01 BALTHASAR, Horst - BECK, Christian - GÖMÖRY, Peter - MUGLACH, Karin - PUSCHMANN, Klaus Gerhard - SHIMIZU, Toshifumi - VERMA, Meetu. Properties of a decaying sunspot. In Central European Astrophysical Bulletin, 2013, vol. 37, p. 435-446. (2013 - NASA ADS). ISSN 1845-8319.
- ADEB02 CHOCHOL, Drahomír - SHUGAROV, Sergey Yu. - VOLKOV, Igor - GORANSKIJ, Vitalij P. - METLOVA, Natalia V. - BARSUKOVA, Elena A. - GABDEEV, Maksim M.. The detection of a 3.486 hour photometric period in the classical nova V2468 Cygni. In Information Bulletin on Variable Stars, 2013, no. 6045, p. 1-4. (2013 - NASA ADS). ISSN 0374-0676.
- ADEB03 GOLYSHEVA, Polina Yu. - KATYSHEVA, Natalia A. - SHUGAROV, Sergey Yu. - BORISOV, Nikolay V. - GABDEEV, Maksim M.. Multicolour photometry of unusual dwarf nova HS 0218+3229. In Central European Astrophysical Bulletin, 2013, vol. 37, p. 345-354. (2013 - NASA ADS). ISSN 1845-8319.
- ADEB04 KATYSHEVA, Natalia A. - SHUGAROV, Sergey Yu. - CHOCHOL, Drahomír - PAVLENKO, Elena - VOLKOV, Igor - ANDREEV, Maksim V. - ANTONYUK, Kirill - ANTONYUK, Oksana I. - BAKLANOV, Aleksei - IRSMAMBETOVA, Tatyana R. - MALANUSHENKO, Viktor - PIT, Nikolai - ZVAGELSKY, Roman. Multicolour investigation of PNV J1842+4837- A new WZ Sge-type dwarf nova in Draco. In Central European Astrophysical Bulletin, 2013, vol. 37, p. 335-344. (2013 - NASA ADS). ISSN 1845-8319.
- ADEB05 PARIMUCHA, Štefan - DUBOVSKÝ, Pavol - VAŇKO, Martin. Minima times of selected eclipsing binaries. In Information Bulletin on Variable Stars, 2013, no. 6044, p. 1-6. (2013 - NASA ADS). ISSN 0374-0676.
- ADEB06 PRIBULLA, Theodor - DIMITROV, Dinko - KJURKCHIEVA, Diana P. - KOHL, Sebastian - KUNDRA, Emil - OHLERT, Johannes - SRDOC, Gregor - VAŇKO, Martin. VSX J075328.9+722424: a new SDB+M dwarf variable? In Information Bulletin on Variable Stars, 2013, no. 6067, p. 1-6. (2013 - NASA ADS). ISSN 0374-0676.
- ADEB07 VOLKOV, Igor - CHOCHOL, Drahomír - GRYGAR, Jiří - JELÍNEK, Miroslav - KUBÁNEK, Petr - MAŠEK, Martin - PROUZA, Michael - RIBEIRO, Tiago - SEBASTIAN, Daniel - VAN HOUTEN, Cornelis Johannes. Period changes in the eclipsing binary DX Vel. In Information Bulletin on Variable Stars, 2013, no. 6066, p. 1-5. (2013 - NASA ADS). ISSN 0374-0676.

ADNA Scientific papers in domestic impact journals registered in the Web of Science or Scopus Core Collection

- ADFA01 HAMBÁLEK, Ľubomír - PRIBULLA, Theodor. The reliability of mass-ratio determination from light curves of contact binary stars. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 27-46. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA02 HUSÁRIK, Marek. Astrometry of minor planets made at the Skalnaté Pleso Observatory in 2009. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 47-52. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA03 HUSÁRIK, Marek. Astrometry of minor planets made at the Skalnaté Pleso Observatory in 2008. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 142-152. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA04 KAŇUCHOVÁ, Zuzana - SVOREŇ, Ján. Meteoroids of 1P/Halley - the list of photographic orbits. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 135-141. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA05 KOZA, Július - SÜTTERLIN, Peter - GÖMÖRY, Peter - RYBÁK, Ján - KUČERA, Aleš. Search for Alfvén waves in a bright network element observed in H_α. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 5-26. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA06 NESLUŠAN, Luboš - JAKUBÍK, Marián. Interstellar comets in the elliptic orbits due to the Galactic tide. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 109-118. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA07 NESLUŠAN, Luboš - JAKUBÍK, Marián. Some aspects of the cosmogonic outward migration of Neptun : Co-planar migration. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 119-134. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA08 RUŠIN, Vojtech - SANIGA, Metod - KOMŽÍK, Richard. The width of helmet streamers as inferred from ground-based eclipse observations. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 73-80. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA09 SVOREŇ, Ján. Astrometry of comets made at the Skalnaté Pleso Observatory in the year 2002. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 53-67. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA10 TSVETKOV, Dmitry Yu. - SHUGAROV, Sergey Yu. - VOLKOV, Igor - GORANSKIJ, Vitalij P. - PAVLYUK, Nikolaj N. - KATYSHEVA, Natalia A. - BARSUKOVA, Elena A. - VALEEV, A.F. Optical observations of SN 2011fe. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2013, vol. 43, p. 94-108. (0.200 - IF2012). (2013 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.

AFC Published contributions to international scientific conferences

- AEC01 CARIKOVÁ, Zuzana - SKOPAL, Augustín. Modelling the structure of the hot

- components in symbiotic binaries during outbursts. In Feeding Compact Objects: Accretion on All Scales : Proceedings of the 290th Symposium of the IAU held in Beijing, China, August 20-24, 2012. Vol. 290. Edited by Chenmin Zhang, Tomaso Belloni, Mariano Méndez and Shuangnan Zhang. - Cambridge : Cambridge University Press, 2013, p. 189-190. ISBN 9781107033795.
- AEC02 HRIC, Ladislav - KUNDRA, Emil - GÁLIS, Rudolf. Mass accretion in intermediate polar V1223 Sgr. In Feeding Compact Objects: Accretion on All Scales : Proceedings of the 290th Symposium of the IAU held in Beijing, China, August 20-24, 2012. Vol. 290. Edited by Chengmin Zhang, Tomaso Belloni, Mariano Méndez and Shuangnan Zhang. - Cambridge : Cambridge University Press, 2013, p. 225-226. ISBN 9781107033795.
- AEC03 KUNDRA, Emil - HRIC, Ladislav - GÁLIS, Rudolf. Accretion and pulsation of IU Per based on INTEGRAL and ground base photometry. In Feeding Compact Objects: Accretion on All Scales : Proceedings of the 290th Symposium of the IAU held in Beijing, China, August 20-24, 2012. Vol. 290. Edited by Chengmin Zhang, Tomaso Belloni, Mariano Méndez and Shuangnan Zhang. - Cambridge : Cambridge University Press, 2013, p. 377-378. ISBN 9781107033795.
- AEC04 PAVLENKO, Elena - MALANUSHENKO, Viktor - SHUGAROV, Sergey Yu. - CHOCHOL, Drahomír. Cataclysmic variables and gamma-ray sources. In Gamma-ray Bursts: 15 Years of GRB Afterglows - Progenitors Environments and Host Galaxies from the Nearby to the Early Universe : European Astronomical Society Publication Series vol. 61. Edited by A.J. Castro-Tirado, J. Gorosabel and I.H. Park. - Cambridge : Cambridge University Press, 2013, p. 255-257. ISSN 1633-4760.
- AEC05 SEKERÁŠ, Matej - SKOPAL, Augustín. On the accretion onto the white dwarfs in symbiotic binaries: A test with the Thomson scattering process. In Feeding Compact Objects: Accretion on All Scales : Proceedings of the 290th Symposium of the IAU held in Beijing, China, August 20-24, 2012. Vol. 290. Edited by Chenmin Zhang, Tomaso Belloni, Mariano Méndez and Shuangnan Zhang. - Cambridge : Cambridge University Press, 2013, p. 305-306. ISBN 9781107033795.
- AEC06 SKOPAL, Augustín. Accretion process powering the supersoft X-ray sources: A test with the multiwavelength modeling the SED. In Feeding Compact Objects: Accretion on All Scales : Proceedings of the 290th Symposium of the IAU held in Beijing, China, August 20-24, 2012. Vol. 290. Edited by Chenmin Zhang, Tomaso Belloni, Mariano Méndez and Shuangnan Zhang. - Cambridge : Cambridge University Press, 2013, p. 311-312. ISBN 9781107033795.
- AEC07 ZEMKO, Polina - ANDREEV, Maksim V. - CHOCHOL, Drahomír - KATYSHEVA, Natalia A. - SHUGAROV, Sergey Yu.. Photometric investigation of the dwarf nova OT J213806.6+261957 in Pegasus. In Binary Paths to Type Ia Supernovae Explosions : IAU Symposium Proceedings vol. 281. Edited by Rosanne Di Stefano, Marina Orio and Maxwell Moe. - Cambridge : Cambridge University Press, 2013, p. 130-131. ISBN 978-1-107-01981-2.
- AEE01 HAJDUKOVÁ, Mária, Jr.. Population of hyperbolic meteoroids. In Proceedings of the International Meteor Conference, La Palma, Canary Islands, Spain, 20-23 September, 2012. Edited by Marc Gyssens and Paul Roggemans. - Hove : International Meteor Organization, 2013, p. 98-104. ISBN 978-2-87355-024-4.

YEAR 2012

ADCA Scientific papers in international scientific journals with impact factor

- ADCA01 ATWOOD-STONE, Corwin - MILLER, Brendan - RICHARDS, Mercedes T. - BUDAJ, Ján - PETERS, Geraldine J. Modeling the accretion structure of AU Mon. In *The Astrophysical Journal*, 2012, vol. 760, article no. 134, p. 1-16. (6.024 - IF2011). (2012 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0004-637X.
- ADCA02 AUBÉ, Martin - KOCIFAJ, Miroslav. Using two light-pollution models to investigate artificial sky radiances at Canary Islands observatories. In *Monthly Notices of the Royal Astronomical Society*, 2012, vol. 422, p. 819-830. (4.900 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0035-8711.
- ADCA03 BLUNCK, Andrea - LÉVAY, Péter - SANIGA, Metod - VRANA, Péter. Invertible symmetric 3 x 3 binary matrices and $GQ(2,4)$. In *Linear and Multilinear Algebra*, 2012, vol. 60, no. 10, p. 1143-1154. (0.727 - IF2011). (2012 - Current Contents, EBSCO, SCOPUS). ISSN 0308-1087.
- ADCA04 BUDAJ, Ján - HUBENY, Ivan - BURROWS, Adam. Day and night side core cooling of a strongly irradiated giant planet. In *Astronomy and Astrophysics*, 2012, vol. 537, article no. A115, p. 1-8. (4.587 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA05 CARIKOVÁ, Zuzana - SKOPAL, Augustín. Ionization structure of hot components in symbiotic binaries during active phases. In *Astronomy and Astrophysics*, 2012, vol. 548, article no. A21, p. 1-10. (4.587 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA06 CARIKOVÁ, Zuzana - SKOPAL, Augustín. Formation of neutral disk-like zone around the active hot stars in symbiotic binaries. In *Baltic Astronomy : <an>* international journal, 2012, vol. 21, p. 105-111. (0.444 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 1392-0049.
- ADCA07 GOLYSHEVA, Polina Yu. - ANTIPIN, Sergey V. - ZHAROVA, Alla V. - KATYSHEVA, Natalia A. - CHOCHOL, Drahomír - SHUGAROV, Sergey Yu.. Multicolor photometry of the dwarf nova HS 0218+3229. In *Astrophysics*, 2012, vol. 55, no. 2, p. 208-225. (0.467 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0571-7256.
- ADCA08 HAVLICEK, Hans - ODEHNAL, Boris - SANIGA, Metod. On invariant notions of Segre varieties in binary projective spaces. In *Designs, Codes and Cryptography*, 2012, vol. 62, p. 343-356. (0.875 - IF2011). (2012 - Current Contents). ISSN 0925-1022.
- ADCA09 CHEN, Wen-Ping - HU, Seline Chia-Ling - ERRMANN, Ronny - ADAM, Christian - BAAR, Stefan - BERNDT, Alexandra - BUKOWIECKI, Lukasz - DIMITROV, Dinko - EISENBEISS, Thomas - FIEDLER, Simone - GINSKI, Christian - GRÄFE, Christian - GUO, Jian K. - HOHLE, Markus M. - HSIAO, H.Y. - JANULIS, Rimvydas - KITZE, Manfred - LIN, H.C. - MACIEJEWSKI, Gracjan - MARKA, Claudia - MARSCHALL, Laurence - MOUALLA, Mohammad - MUGRAUER, Markus - NEUHÄUSER, Ralph - PRIBULLA, Theodor - RAETZ, Stefanie - RÖLL, Tristan - SCHMIDT, Emanuel - SCHMIDT, Janos - SCHMIDT, Tobias O.B. - SEELIGER, Martin - TREPL, Ludwig - BRICENO, Cesar - CHINI, Rolf - JENSEN, Eric L.N. - NIKOGOSSIAN, Elena H. - PANDEY, Anil K. - SPERAUSKAS, Julius - TAKAHASHI, Hidenori - WALTER, Fred M. - WU, Zhen-Yu - ZHOU, Xu. A possible detection of occultation by a proto-planetary clump in GM Cephei. In *The*

- Astrophysical Journal, 2012, vol. 751, article no. 118, p. 1-5. (6.024 - IF2011). (2012 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0004-637X.
- ADCA10 JAKUBÍK, Marián - MORBIDELLI, Alessandro - NESLUŠAN, Luboš - BRASSER, Ramon. The accretion of Uranus and Neptune by collisions among planetary embryos in the vicinity of Jupiter and Saturn. In Astronomy and Astrophysics, 2012, vol. 540, article no. A71, p. 1-16. (4.587 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA11 KAŇUCHOVÁ, Zuzana - BRUNETTO, Rosario - MELITA, Mario - STRAZZULLA, Giovanni. Space weathering and the color indexes of minor bodies in the outer Solar System. In Icarus, 2012, vol. 221, p. 12-19. (3.385 - IF2011). (2012 - Current Contents, EBSCO, SCOPUS, NASA ADS). ISSN 0019-1035.
- ADCA12 KATO, Taichi - MAEHARA, Hiroyuki - MILLER, Ian - OHSHIMA, Tomohito - DE MIGUEL, Enrique - TANABE, Kenji - IMAMURA, Kazuyoshi - AKAZAWA, Hidehiko - KUNITOMI, Nanae - TAKAGI, Ryosuke - NOSE, Mikiha - HAMBSCH, Franz-Josef - KIYOTA, Seiichiro - PAVLENKO, Elena - BAKLANOV, Aleksei - ANTONYUK, Oksana I. - SAMSONOV, Denis A. - SOSNOVSKIJ, Aleksei - ANTONYUK, Kirill - ANDREEV, Maksim V. - MORELLE, Etienne - DUBOVSKÝ, Pavol - KUDZEJ, Igor - OKSANEN, Arto - MASI, Gianluca - KRAJCI, Thomas - PICKARD, Roger - SABO, Richard - ITOH, Hiroshi - STEIN, William - DVORAK, Shawn - HENDEN, Arne - NAKAGAWA, Shinichi - NOGUCHI, Ryo - IINO, Eriko - MATSUMOTO, Katsura - NISHITANI, Hiroki - AOKI, Tomoya - KOBAYASHI, Hiroshi - AKASAKA, Chihiro - BOLT, Greg - SHEARS, Jeremy - RUIZ, Javier - SHUGAROV, Sergey Yu. - CHOCHOL, Drahomír - PARAKHIN, Nikolay A. - MONARD, Berto - SHIOKAWA, Kazuhiko - KASAI, Kiyoshi - STAELS, Bart - MIYASHITA, Atsushi - STARKEY, Donn - ÖGMEN, Yenal - LITTLEFIELD, Colin - KATYSHEVA, Natalia A. - SERGEY, Ivan M. - DENISENKO, Denis - TORDAI, Tamas - FIDRICH, Robert - GORANSKIJ, Vitalij P. - VIRTANEN, Jani - CRAWFORD, Tim - PIETZ, Jochen - KOFF, Robert A. - BOYD, David - BRADY, Steve - JAMES, Nick - GOFF, William N. - ITAGAKI, Koh-ichi - NISHIMURA, Hideo - NAKASHIMA, Youichirou - YOSHIDA, Seiichi - STUBBINGS, Rod - POYNER, Gary - MAEDA, Yutaka - KOROTKIY, Stanislav A. - SOKOLOVSKY, Kirill V. - UEDA, Seiji. Survey of period variations of superhumps in SU UMa-type dwarf novae. III. The third year (2010-2011). In Publications of the Astronomical Society of Japan, 2012, vol. 64, article no. 21, p. 1-80. (2.438 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6264.
- ADCA13 KOCIFAJ, Miroslav - KLAČKA, Jozef - VIDEEN, Gorden - KOHÚT, Igor. Optical properties of a polydispersion of small charged cosmic dust particles. In Journal of Quantitative Spectroscopy & Radiative Transfer, 2012, vol. 113, p. 2561-2566. (3.193 - IF2011). (2012 - Current Contents). ISSN 0022-4073.
- ADCA14 KOCIFAJ, Miroslav. Two-stream approximation for rapid modeling the light pollution levels in local atmosphere. In Astrophysics and Space Science, 2012, vol. 341, p. 301-307. (1.686 - IF2011). (2012 - Current Contents, EBSCO, SCOPUS, NASA ADS). ISSN 0004-640X.
- ADCA15 KOCIFAJ, Miroslav - KUNDRACÍK, František. On some microphysical properties of dust grains captured into resonances with Neptune. In Monthly Notices of the Royal Astronomical Society, 2012, vol. 422, p. 1665-1673. (4.900 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0035-8711.
- ADCA16 KREJČOVÁ, Tereza - BUDAJ, Ján. Evidence for enhanced chromospheric Ca II H and K emission in stars with close-in extrasolar planets. In Astronomy and

- Astrophysics, 2012, vol. 540, article no. A82, p. 1-9. (4.587 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA17 KRTIČKA, Jiří - MIKULÁŠEK, Zdeněk - LÜFTINGER, Theresa - SHULYAK, Denis - ZVERKO, Juraj - ŽIŽŇOVSKÝ, Jozef - SOKOLOV, Nikolay A. Modelling of the ultraviolet and visual SED variability in the hot magnetic Ap star CU Virginis. In Astronomy and Astrophysics, 2012, vol. 537, article no. A14, p. 1-14. (4.587 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA18 PLANAT, Michel - SANIGA, Metod. Five-qubit contextuality, noise-like distribution of distances between maximal bases and finite geometry. In Physics Letters A. General Atomic and Solid State Physics, 2012, vol. 376, p. 3485-3490. (1.632 - IF2011). (2012 - Current Contents). ISSN 0375-9601.
- ADCA19 PORUBČAN, Vladimír - BUČEK, Marek - CEVOLANI, Giordano - ZIGO, Pavel. Variation of meteor heights and solar-cycle activity. In Publications of the Astronomical Society of Japan, 2012, vol. 64, article no. 86, p. 1-5. (2.438 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6264.
- ADCA20 PRAVEC, Petr - SCHEIRICH, Petr - VOKROUHLICKÝ, David - HARRIS, Alan W. - KUŠNIRÁK, Peter - HORNOCH, Kamil - PRAY, Donald P. - HIGGINS, David - GALÁD, Adrián - VILÁGI, Jozef - GAJDOŠ, Štefan - KORNOŠ, Leoš - OEY, Julian - HUSÁRIK, Marek - COONEY, Walter R. - GROSS, John - TERREL, Dirk - DURKEE, Russ - POLLOCK, Joseph - REICHART, Daniel - IVARSEN, Kevin - HAISLIP, Josh - LA CLUYZE, Aaron - KRUGLY, Yuriy N. - GAFTONYUK, Ninel - STEPHENS, Robert D. - DYVIG, Ron - REDDY, Vishnu - CHIORNY, Vasilij - VADUVESCU, Ovidiu - LONGA-PEÑA, Penélope - TUDORICA, Alexandru - WARNER, Brian D. - MASI, Gianluca - BRINSFIELD, Jim - GONCALVES, Rui - KRZEMINSKI, Zbigniew - GERASHCHENKO, Oleg - SHEVCHENKO, Valeri - MOLOTOV, Igor - MARCHIS, Franck. Binary asteroid population. 2. Anisotropic distribution of orbit poles of small, inner main-belt binaries. In Icarus, 2012, vol. 218, p. 125-143. (3.385 - IF2011). (2012 - Current Contents, EBSCO, SCOPUS, NASA ADS). ISSN 0019-1035.
- ADCA21 PRIBULLA, Theodor - VAŇKO, Martin - AMMLER-VON EIFF, Matthias - ANDREEV, Maksim V. - ASLANTÜRK, Ali - AWADALLA, Nabil - BALUĐANSKÝ, Daniel - BOZIC, Hrvoje - CATANZARO, Gianni - ÇELIK, Lale - CHRISTOPOULOU, Panagiota-Eleftheria - COVINO, Elvira - CUSANO, Felice - DIMITROV, Dinko - DUBOVSKÝ, Pavol - EIGMUELLER, Philipp - ESMER, Ekrem Murat - FRASCA, Antonio - HAMBÁLEK, Ľubomír - HANNA, Magdy A. - HANSLMEIER, Arnold - KALOMENI, Belinda - KJURKCHIEVA, Diana P. - KRUSHEVSKA, Victoria - KUDZEJ, Igor - KUNDRA, Emil - KUZNYETSOVA, Yuliana - LEE, Jae Woo - LEITZINGER, Martin - MACIEJEWSKI, Gracjan - MOLDOVAN, Dan - MORAIS, Maria Helena Moreira - MUGRAUER, Markus - NEUHÄUSER, Ralph - NIEDZIELSKI, Andrzej - ODERT, Petra - OHLERT, Johannes - ÓZAVCI, Ibrahim - PAPAGEORGIOU, Andreas - PARIMUCHA, Štefan - PODDANÝ, Stanislav - POP, Alexandru - RAETZ, Manfred - RAETZ, Stefanie - ROMANYUK, Yaroslav - RUŽDJAK, Domagoj - SCHULZ, Juergen - ŞENAVCI, Hakan Volkan - SRDOC, Gregor - SZALAI, Tamas - SZÉKELY, Peter - SUDAR, Davor - TEZCAN, Cihan Turul - TÖRÜN, Mehmet Erta - TURCU, Vlad - VINCE, Oliver - ZEJDA, Miloš. The dwarf project: Eclipsing binaries - precise clocks to discover exoplanets. In Astronomische Nachrichten, 2012, vol. 333, no. 8, p. 754-766. (1.012 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6337.
- ADCA22 SANIGA, Metod - PLANAT, Michel - PRACNA, Petr - LÉVAY, Péter. 'Magic'

configurations of three-qubit observables and geometric hyperplanes of the smallest Split Cayley Hexagon. In *Symmetry, Integrability and Geometry: Methods and Applications*, 2012, vol. 8, article no. 083, p. 1-9. (1.071 - IF2011). (2012 - Current Contents, SCOPUS). ISSN 1815-0659. Dostupné na internete: <www.emis.de/journals/SIGMA>.

- ADCA23 SANIGA, Metod. Finite projective spaces, geometric spreads of lines and multi-qubits. In *International Journal of Modern Physics B*, 2012, vol. 26, no. 27, article no. 1243013, p. 1-3. (0.324 - IF2011). (2012 - Current Contents, WOS, SCOPUS). ISSN 0217-9792.
- ADCA24 SANIGA, Metod - PLANAT, Michel. Finite geometry behind the Harvey-Chryssanthacopoulos for-qubit magic rectangle. In *Quantum Information and Computation*, 2012, vol. 11, no. 11-12, p. 1011-1016. (1.659 - IF2011). (2012 - Current Contents). ISSN 1533-7146.
- ADCA25 SANIGA, Metod - LÉVAY, Péter - PRACNA, Petr. Charting the real four-qubit Pauli group via ovoids of a hyperbolic quadric of PG(7,2). In *Journal of Physics A: Mathematical and Theoretical*, 2012, vol. 45, article no. 295304, p. 1-16. (1.564 - IF2011). (2012 - Current Contents, WOS, SCOPUS). ISSN 1751-8113.
- ADCA26 SANIGA, Metod - LÉVAY, Péter. Mermin's pentagram as an ovoid of PG(3,2). In *EPL - Europhysics Letters*, 2012, vol. 97, article no. 50006, p. 1-3. (2.171 - IF2011). (2012 - Current Contents, SCOPUS). ISSN 0295-5075.
- ADCA27 SEKERÁŠ, Matej - SKOPAL, Augustín. Electron optical depths and temperatures of symbiotic nebulae from Thomson scattering. In *Monthly Notices of the Royal Astronomical Society*, 2012, vol. 427, p. 979-987. (4.900 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0035-8711.
- ADCA28 SEKERÁŠ, Matej - SKOPAL, Augustín. Contribution of the electron scattering process to the broad H_α wings. In *Baltic Astronomy : an international journal*, 2012, vol. 21, p. 196-199. (0.444 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 1392-0049.
- ADCA29 SHUGAROV, Sergey Yu. - CHOCHOL, Drahomír - KOLOTILOV, Eugene. Symbiotic nova PU Vul - 33 years of observations. In *Baltic Astronomy : an international journal*, 2012, vol. 21, p. 150-156. (0.444 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 1392-0049.
- ADCA30 SHUGAROV, Sergey Yu. - KOLOTILOV, Eugene - KOMISSAROVA, Galina - SKOPAL, Augustín - ZEMKO, Polina. Photometric activity of the symbiotic star CH Cyg during 2008-2011. In *Baltic Astronomy : an international journal*, 2012, vol. 21, p. 184-187. (0.444 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 1392-0049.
- ADCA31 SCHWARTZ, Pavol - SCHMIEDER, Brigitte - HEINZEL, Petr - KOTRČ, Pavel. Study of an extended EUV filament using SOHO/SUMMER observations of the hydrogen Lyman lines : II. Lyman alpha line observed during a multi-wavelength campaign. In *Solar Physics*, 2012, vol. 281, p. 707-728. (2.776 - IF2011). (2012 - Current Contents, WOS, SCOPUS, NASA ADS). ISSN 0038-0938.
- ADCA32 SKOPAL, Augustín - SHAGATOVA, Natalia. Measuring the orbital inclination of Z Andromedae from Rayleigh scattering. In *Astronomy and Astrophysics*, 2012, vol. 547, article no. A45, p. 1-6. (4.587 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6361.
- ADCA33 SKOPAL, Augustín. Multiwavelength sed as a tool in understanding outbursts of symbiotic binaries. In *Baltic Astronomy : an international journal*, 2012, vol. 21, p. 97-104. (0.444 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 1392-0049.

- ADCA34 SKOPAL, Augustín - SHUGAROV, Sergey Yu. - VAŇKO, Martin - DUBOVSKÝ, Pavol - PENEVA, Stoyanka Petrova - SEMKOV, Evgeni - WOLF, Marek. Recent photometry of symbiotic stars. In *Astronomische Nachrichten*, 2012, vol. 333, no. 3, p. 242-255. (1.012 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0004-6337.
- ADCA35 STATEVA, Ivanka - ILIEV, Ilian Kh. - BUDAJ, Ján. Abundance analysis of Am binaries and search for tidally driven abundance anomalies - III. HD 116657, HD 138213, HD 155375, HD 159560, HD 196544 and HD 204188. In *Monthly Notices of the Royal Astronomical Society*, 2012, vol. 420, p. 1207-1216. (4.900 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0035-8711.
- ADCA36 TARASOVA, Taissia Natasha - SKOPAL, Augustín. Formation of the disk structure and jets in the symbiotic system Z And during periods of activity in 2006-2010. In *Astronomy Reports*, 2012, vol. 56, no.3, p.218-240. (0.725 - IF2011). (2012 - Current Contents, EBSCO, SCOPUS, NASA ADS). ISSN 1063-7729.
- ADCA37 TOMKO, Dušan - NESLUŠAN, Luboš. Search for new parent bodies of meteoroid streams among comets. I. Showers of comets 126P/1996 P1 and 161P/2004 V2 with radiants on Southern sky. In *Earth, Moon, and Planets*, 2012, vol. 108, p. 123-138. (0.667 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0167-9295.
- ADCA38 TREPL, Ludwig - HAMBARYAN, Valeri V. - PRIBULLA, Theodor - TETZLAFF, Nina - CHINI, Rolf - NEUHÄUSER, Ralph - POPOV, S.B. - STAHL, Otmar - WALTER, Fred M. - HOHLE, Markus M. Is there a compact companion orbiting the late O-type binary star HD 164816? In *Monthly Notices of the Royal Astronomical Society*, 2012, vol. 427, p. 1014-1023. (4.900 - IF2011). (2012 - Current Contents, SCOPUS, NASA ADS). ISSN 0035-8711.

ADEB Scientific papers in other foreign journals

- ADEB01 BARATTA, Giuseppe Antonio - FULVIO, Daniele - GAROZZO, Mario - KAŇUCHOVÁ, Zuzana - PALUMBO, Maria Elisabetta - SPINELLA, Franco - STRAZZULLA, Giovanni. Sulfur and carbon bearing molecules on the Galilean moons. In *Memorie della Societa Astronomica Italiana Supplementi*, 2012, vol. 20, p. 94-98. (2012 - NASA ADS). ISSN 1824-0178.
- ADEB02 CEVOLANI, Giordano - GRASSI, Giorgio - BORTOLOTTI, Giuseppe - BRUCO, Riccardo - MARTI, Marco - PUPILLO, Giuseppe - TEPORE, Marco - TRIVELLONE, Giuliano - VISI, Luigi - PORUBČAN, Vladimír. Forward scatter radio observations of atmospheric space debris and meteoroids during 2009-2010. In *Memorie della societa astronomica italiana supplementi*, 2012, vol. 20, p. 8-14. (2012 - NASA ADS). ISSN 1824-0178.
- ADEB03 HUSÁRIK, Marek - SVOREŇ, Ján - VAŠKOVÁ, Radka. Period of asteroid 696 Leonora Revised. In *Minor Planet Bulletin*, 2012, vol. 39, no. 3, p. 100-101. (2012 - NASA ADS). Dostupné na internete: <<http://www.minorplanetobserver.com/mpb/default.htm>>.
- ADEB04 CHOCHOL, Drahomír - SHUGAROV, Sergey Yu. - PRIBULLA, Theodor - VOLKOV, Igor. Post-outburst photometry of the classical nova V2468 Cygni. In *Memorie della Societa Astronomica Italiana*, 2012, vol. 83, p. 767-771. (2012 - NASA ADS). ISSN 0037-8720.
- ADEB05 KATYSHEVA, Natalia A. - SHUGAROV, Sergey Yu.. The observations of deeply eclipsing polars FL Ceti and CSS 081231: 071126+440405. In *Memorie della*

- Societa Astronomica Italiana, 2012, vol. 83, p. 670-674. (2012 - NASA ADS). ISSN 0037-8720.
- ADEB06 PAVLENKO, Elena - MALANUSHENKO, Viktor - TOVMASSIAN, Gagik - ZHARIKOV, Sergey - KATO, Taichi - KATYSHEVA, Natalia A. - ANDREEV, Maksim V. - BAKLANOV, Aleksei - ANTONYUK, Kirill - PIT, Nikolai - SOSNOVSKIJ, Aleksei - SHUGAROV, Sergey Yu.. SDSS J080434.20+510349.2: cataclysmic variable witnessing the instability strip? In Memorie della Societa Astronomica Italiana, 2012, vol. 83, p. 520-524. (2012 - NASA ADS). ISSN 0037-8720.
- ADEB07 TSVETKOV, Dmitry Yu. - VOLKOV, Igor - SOROKINA, Elena I. - BLINNIKOV, Sergej I. - PAVLYUK, Nikolaj N. - BORISOV, Genadij V. Photometric observations and preliminary modeling of type IIB supernova 2011dh. In Peremennye Zvezdy, 2012, vol. 32, no. 6, p. 1-14. (2012 - NASA ADS). ISSN 0373-7683.
- ADEB08 VIRNINA, Natalia A. - KOCIÁN, Radek - HAMBÁLEK, Ľubomír - DUBOVSKÝ, Pavol - ANDRONOV, Ivan L. - KUDZEJ, Igor. Photometric study of two recently discovered variable stars in the field of BS Cas. In Open European Journal on Variable Stars, January 2012, vol. 146, p. 1-15. (2012 - NASA ADS). Názov prebraný z titulnej obrazovky. Dostupné na internete: <<http://var.astro.cz/oejv>>.
- ADEB09 VOLKOV, Igor. Photometric behaviour of V1343 Aquilae (SS 433) IN 2011. In Information Bulletin on Variable Stars, 2012, no. 6022, p. 1-5. (2012 - NASA ADS). ISSN 0374-0676.
- ADEB10 WARNER, Brian D. - HARRIS, Alan W. - PRAVEC, Petr - KUŠNIRÁK, Peter - HORNOCH, Kamil - STEPHENS, Robert D. - PRAY, Donald P. - HUSÁRIK, Marek - POLLOCK, Joseph - REICHART, Daniel - REICHART, Daniel - IVARSEN, Kevin - NYSEWANDER, Melissa C. - LA CLUYZE, Aaron. Lightcurve for 7758: a possible binary? In Minor Planet Bulletin, 2012, vol. 39, p. 232-233. (2012 - NASA ADS). Dostupné na internete: <<http://www.minorplanetobserver.com/mpb/default.htm>>.

ADNA Scientific papers in domestic impact journals registered in the Web of Science or Scopus Core Collection

- ADFA01 BĚLÍK, Marcel - RUŠIN, Vojtech - SANIGA, Metod - BARCZYNSKI, Krzysztof. Dynamics of polar plumes observed during the total solar eclipse of August 1, 2008. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 125-134. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA02 BUČEK, Marek - PORUBČAN, Vladimír - ZIGO, Pavol. Solar activity and Perseid meteor heights. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 22-32. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA03 HUSÁRIK, Marek. Astrometry of minor planets made at the Skalnaté Pleso Observatory in the year 2010. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 95-102. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA04 HUSÁRIK, Marek. Relative photometry of the possible main-belt comet (596) Scheila after an outburst. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 15-21. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA05 HUSÁRIK, Marek. Astrometry of minor planets made at the Skalnaté Pleso Observatory in the year 2011. In Contributions of the Astronomical Observatory

- Skalnaté Pleso, 2012, vol. 42, p. 5-14. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA06 CHOCHOL, Drahomír - KATYSHEVA, Natalia A. - SHUGAROV, Sergey Yu. - ZEMKO, P.O. - ANDREEV, Maksim V. Photometric investigation of the dwarf nova Pegasi 2010 - a new WZ Sge-type object. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 39-79. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA07 KAŇUCHOVÁ, Zuzana - SVOREŇ, Ján. Northern Taurids in the IAU MDC Database. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 115-124. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA08 NESLUŠAN, Luboš - PORUBČAN, Vladimír - SVOREŇ, Ján - SCHUNOVÁ, Eva. New 211 photographic meteor orbits in the IAU MDC. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 85-94. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA09 SCHWARTZ, Pavol - RYBÁK, Ján - KUČERA, Aleš - KOZÁK, Matúš - AMBRÓZ, Jaroslav - GÖMÖRY, Peter. A quiescent prominence observed in the H_α line by the COMP-S instrument at the Lomnický Peak Observatory. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 135-146. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA10 SVOREŇ, Ján. Astrometry of comets made at the Skalnaté Pleso Observatory in the year 2001. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 103-114. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.
- ADFA11 SVOREŇ, Ján. Astrometry of comets made at the Skalnaté Pleso Observaotry in 2000. In Contributions of the Astronomical Observatory Skalnaté Pleso, 2012, vol. 42, p. 33-38. (0.152 - IF2011). (2012 - WOS, SCOPUS, NASA ADS). ISSN 1335-1842.

AFC Published contributions to international scientific conferences

- AEC01 AMMLER-VON EIFF, Matthias - VAŇKO, Martin - PRIBULLA, Theodor - COVINO, Elvira - NEUHÄUSER, Ralph - JOERGENS, V. Multiwavelength photometry of the young intermediate mass eclipsing binary TY CrA. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 59-60. ISBN 9781107019829.
- AEC02 BUDAJ, Ján. Synthetic spectra and light curves of interacting binaries and exoplanets with circumstellar material: SHELLSPEC. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 293-298. ISBN 9781107019829.
- AEC03 BUDAJ, Ján - BURROWS, Adam - HUBENY, Ivan. Day-night side cooling of a strongly irradiated giant planet. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 486-489. ISBN 9781107019829.
- AEC04 CARIKOVÁ, Zuzana - SKOPAL, Augustín. Creation of neutral disk-like zone around the active hot star in symbiotic binaries. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282.

- Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 265-266. ISBN 9781107019829.
- AEC05 GÁLIS, Rudolf - HRIC, Ladislav - KUNDRA, Emil. Hard X-ray and optical activity of intermediate polars. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 87-88. ISBN 9781107019829.
- AEC06 HRIC, Ladislav - KUNDRA, Emil. Pre-cataclysmic system V471 Tau with confirmed brown dwarf and suspected extrasolar planet. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 121-122. ISBN 9781107019829.
- AEC07 KERVELLA, Pierre - MÉRAND, Antoine - PRIBULLA, Theodor. Interferometry, spectroscopy and astrometry of the bright eclipsing system Delta Velorum. In Proceedings of the workshop "Orbital couples: Pas de deux in the solar system and the Milky way". Edited by F. Arenou and D. Hestroffer. - Paris : Observatoire de Paris, 2012, p. 103-107. ISBN 2-910015-64-5.
- AEC08 KREJČOVÁ, Tereza - BUDAJ, Ján - KOZA, Július. Search for the star-planet interaction. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 125-126. ISBN 9781107019829.
- AEC09 NEDOROŠČIK, Jozef - VAŇKO, Martin - PARIMUCHA, Štefan. Statistical investigation of physical and geometrical parameters in close binaries using the ASAS database. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 73-74. ISBN 9781107019829.
- AEC10 PARIMUCHA, Štefan - VAŇKO, Martin - MIKLOŠ, Peter. SPHOTOM - package for an automatic multicolour photometry. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 81-82. ISBN 9781107019829.
- AEC11 PRIBULLA, Theodor. ROCHE: Analysis of eclipsing binary multi-dataset observables. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 279-282. ISBN 9781107019829.
- AEC12 RICHARDS, Mercedes T. - HUBENY, Ivan - PRIBULLA, Theodor - HRIC, Ladislav. Preface. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. XVI-XIX. ISBN 9781107019829.
- AEC13 SEKERÁŠ, Matej - SKOPAL, Augustín. The role of electron scattering in probing the wind from the hot star in symbiotic binaries. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 315-316. ISBN 9781107019829.
- AEC14 SKOPAL, Augustín. Multiwavelength modeling the SED of strongly interacting binaries. In From Interacting Binaries to Exoplanets: Essential Modeling Tools :

- IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 65-66. ISBN 9781107019829.
- AEC15 STATEVA, Ivanka - ILIEV, Ilian - BUDAJ, Ján. Search for tidally driven anomalies in the atmospheres of Am stars. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 299-300. ISBN 9781107019829.
- AEC16 VAŇKO, Martin - JAKUBÍK, Marián - KREJČOVÁ, Tereza - MACIEJEWSKI, Gracjan - BUDAJ, Ján - PRIBULLA, Theodor - OHLERT, Johannes - RAETZ, Stefanie - KRUSHEVSKA, Victoria - DUBOVSKÝ, Pavol. New photometric observations of the transiting extrasolar planet TrES-3b. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 135-136. ISBN 9781107019829.
- AEC17 VOLKOV, Igor - CHOCHOL, Drahomír - VOLKOVA, Natalia S. - NIKOLENKO, I.V. Is EQ Boo a quadruple system? In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 89-90. ISBN 9781107019829.
- AEC18 ZIELIŃSKI, Pawel - VAŇKO, Martin - BAINES, Ellyn - NIEDZIELSKI, Andrzej - WOLSZCZAN, Aleksander. PTPS candidate exoplanet host star radii determination with CHARA array. In From Interacting Binaries to Exoplanets: Essential Modeling Tools : IAU Symposium Proceedings Vol. 282. Edited by Mercedes T. Richards and Ivan Hubeny. - Cambridge : Cambridge University Press, 2012, p. 203-204. ISBN 9781107019829.
- AEE01 SCHWARTZ, Pavol - HEINZEL, Petr - KOTRČ, Pavel - ANZER, Ulrich - KUPRYAKOV, Yurij Alexejevič - DELUCA, Edward E. Mass loading of quiescent prominences. In The Fifth Hinode Science Meeting : ASP Conference Series, Vol. 456. Edited by Leon Golub, Ineke De Moortel and Toshifumi Shimizu. - San Francisco : Astronomical Society of the Pacific, 2012, p. 73-74.
- AEE02 UTZ, Dominik - HANSLMEIER, Arnold - MULLER, Richard - VERONIG, Astrid - RYBÁK, Ján - MUTHSAM, Herbert. Dependence of velocity distributions of small-scale magnetic fields derived from Hinode/SOT G-band filtergrams on the temporal resolution of the used data sets. In Hinode-3: The Third Hinode Science Meeting : ASP Conference Series, vol. 454. Edited by T. Sekii, T. Watanabe and T. Sakurai. - San Francisco : Astronomical Society of the Pacific, 2012, p. 55-58. ISBN 978-1-58381-790-2.