

SPECIAL ASTROPHYSICAL OBSERVATORY
RUSSIAN ACADEMY OF SCIENCES

MULTI-SPIN GALAXIES — 2016

A B S T R A C T B O O K

Nizhnij Arkhyz (Russia)
26–30 September 2016

Wi-Fi Connection

name: saonet 2

password: saconf2016

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password: saconf2016

proxy settings:

squid.sao.ru, port 8080

or

serv.sao.ru, port 8080

The Conference Website

<https://www.sao.ru/hq/multispin16/>

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WELCOME

In 2016, a leading center of the Russian ground-based observational astronomy, Special Astrophysical Observatory of the Russian Academy of Sciences, is celebrating its 50th anniversary. The Observatory organizes an international conference “Multi-spin galaxies 2016”, as a part of the festivities.

Multi-spin galaxies – 2016

The main purpose of the conference is discussions between observers and theorists on current understanding on the origin and evolution of the angular momentum decoupling in galaxies (“multi-spin galaxies” V. Rubin, 1994). This class of objects includes all galaxies with a kinematically distinct component of gas and/or stars, with several inclination angles and extensions with respect to the host galaxy: they are the galaxies with inner or extended polar rings/disks, low-inclined rings, kinematically decoupled cores, and any types of counter-rotating components.

The previous meeting of these series took place in Naples in 2013. Related problems were also discussed during the Special Session on EWASS-2015, Tenerife.

The conference will focus on the following main topics:

- Morphology, photometry, and stellar population in multi-spin systems
- Gas and stars kinematics and dynamics of multi-spin systems
- The role of environment in the formation and evolution of multi-spin galaxies

- Low surface brightness features: dwarf, tidal tails, and debris, filamentary accretion...
- Properties of colliding/interacting galaxies as a function of redshift

Scientific Organizing Committee:

- Afanasiev Victor (SAO RAS, Russia)
- Brosch Noah (Tel Aviv University, Israel)
- Combes Francoise (Obs. de Paris, France) – co-chair
- Duc Pierre-Alain (AIM Paris-Saclay, France)
- Iodice Enrichetta (INAF–OAC, Italy) – co-chair
- Keel William (University of Alabama, USA)
- Mapelli Michela (INAF – Padova, Italy)
- Moiseev Alexei (SAO RAS, Russia) – **chair**
- Sil’chenko Olga (SAI – Moscow University, Russia)

Local Organizing Committee:

- Filippova Ekaterina
- Kashibadze Olga
- Moiseev Alexei – **chair**
- Oborina Natalya
- Oparin Dmitry
- Perepelitsyna Yulia

- Smirnova Aleksandrina
- Tepliakova Arina
- Uklein Roman

Invited speakers:

- Bettoni Daniela (INAF – Padova, Italy)
- Bizyaev Dmitry (NMSU/APO , USA)
- Bouche Nicolas (IRAP, France)
- Brosch Noah (Tel Aviv University, Israel)
- Józsa Gyula (SKA, South Africa)
- Khoperskov Sergey (INASAN, Russia)
- Kroupa Pavel (Universitat Bonn, Germany)
- Pizzella Alessandro (Universita di Padova, Italy)
- Reshetnikov Vladimir (St. Petersburg Uni., Russia)
- Walcher Jacob (AIP, Germany)

SAO RAS TELESCOPES

The Special Astrophysical Observatory of the Russian Academy of Sciences was founded in 1966. At present this is the Russian center for ground-based astronomical observations.

The main instruments are: the optical telescope BTA and the radio telescope RATAN-600. The telescopes have the status of national instruments. The observatory has a branch in Saint-Petersburg.

BTA — the Big Telescope Azimuthal — is the Eurasia's largest optical telescope with a main mirror diameter of 6 meters. This is the first large telescope on alt-azimuth mounting.

The telescope height is 42 m, the weight is about 600 tons. The dome is 52 m high. The focal distance of the primary focus is 24 m, that of Nasmyth focuses is 180 m.

Spectral and photometric observations of stars and galaxies are conducted with the BTA including observations with high angular, temporal, or spectral resolution.

RATAN-600 is the only radio telescope in the world with a ring main mirror with a diameter of 600 m, which consists of 895 elements — flat metallic panels 11.5 m high.

The wavelength range is from 1 to 50 cm. Radio observations of the Sun, the nearest planets, the interstellar medium, active objects of the Universe, and the microwave background are carried out in three focuses.

ABSTRACTS: Invited Talks

1. The environment of multi-spin galaxies and its role in their formation and evolution

Daniela Bettoni (INAF – Osservatorio Astronomico di Padova)

Abstract:

One of the main challenges of the study of multi-spin galaxies is to disentangle, among the manifold of cases observed, the different evolutionary paths producing multi-spin galaxy components. In this context, I will review the present day studies on the environment of multi-spin galaxies. In particular, I will discuss the environment of Polar-ring and counter-rotating (CR) galaxies and I will also present two new cases of multi-spin galaxies (one Polar-ring and one CR) in very dense environments.

2. MaNGA view of Multi-Spin Galaxies

Dmitry Bizyaev (Apache Point Observatory/NMSU) and MaNGA collaboration

Abstract: Mapping Nearby Galaxies at Apache Point Observatory (MaNGA) is a massive spectroscopic mapping of galaxies conducted in the frames of SDSS-IV. Due to its good spectral resolution ($R \sim 2000$) and wavelength coverage (3600–10300Å), MaNGA has become a powerful tool for the investigation of galactic kinematic and abundance patterns. I will overview the progress of the survey and its view of kinematics of different galactic components.

3. The angular momentum of $z=1$ star forming galaxies from gas (and stars) kinematics with MUSE

Nicolas Bouche (IRAP), T. Contini (IRAP), B. Epinat (LAM), A. Guerou (ESO), J. Brinchmann (Leiden Observatory), E. Ventou (IRAP), R. Bacon (CRAL), J. Richard (CRAL), H. Finley (IRAP), L. Wisotzki (AIP), P. Weilbacher (Postdam), E. Emsellem (ESO), D. Krajnovic (AIP), L. Michel-Dansac (CRAL)

Abstract: The kinematics (and its evolution) of L^* galaxies are now relatively well established from $z=0$ up to redshift $z=3$, thanks to large IFU surveys. However, little is known about the kinematics of lower mass galaxies (below $10^{10} M_{\odot}$). With MUSE, it is now possible to characterize the angular momentum of low-mass galaxies at intermediate redshift. We find that the low mass galaxies follow the scaling relations defined in the local universe between the specific angular momentum and the stellar mass with a continuous transition from the disk-dominated to dispersion dominated locus.

4. Very low surface brightness features near edge-on disk galaxies

Noah Brosch (Wise Observatory, Israel), Aleksandr V. Mosenkov (Gent University, Belgium) and Michael R. Rich (UCLA, USA)

Abstract: Modern cosmological simulations predict that galaxies form by accreting (dwarf) galaxies; matter accretion from external sources is also one of the mechanisms to produce multi-spin galaxies. Accretion events should leave low surface brightness (LSB) observable traces such as tails,

shells, fans, etc. Recent observational studies reported wildly varying percentages of LSB features near galaxies that could be interpreted as indicating minor mergers. Such signs of minor mergers and galaxy accretion could be detected easier if observed in a sample of edge-on disk galaxies (EODGs). We shall report progress in a project to study such features by deep imaging EODGs from the Wise Observatory, reaching 27-28 mag/square arcsec. At present, we shall present preliminary results from a sample of 24 objects, out of a total of 170 EODGs to be observed and analyzed in the coming years.

5. HI in multi-spin systems, including problems of gas accretion

Gyula Józsa, SKA Africa/Rhodes University

Abstract: Observations of the HI emission line have been used to study (at least) two multi-spin phenomena in galaxies. The first is the occurrence of changes in the orientation of the spin axes in galaxies and their sub-systems. As they occur in a non-negligible number of objects, it is important to explore their structure and statistics, if possible. Secondly, the vertical angular momentum structure of HI in and around spiral galaxies has been observed in very sensitive observations and has been brought into the context of star formation in galaxies. I will discuss examples of studies addressing both aspects, in particular focusing the question if gas accretion in spiral can be observed (to date) using observations of the HI line.

6. Dynamical modelling of multi-spin galaxies

Sergey Khoperskov (GEPI, Observatoire de Paris), Moiseev A., Bertin G.

Abstract: The theoretical and modelling work about polar ring galaxies (PRGs) and galaxies with counterrotation (CG) being undertaken inside our team will be presented.

PRGs represent an interesting type of peculiar systems in which the outer matter is rotating in the plane which is roughly perpendicular to the disk of the main galaxy. Despite the long-lasting study of the PRGs, the amount of observational data detailed enough is insufficient; there are still remain many open questions. Using the stellar and ionized gas kinematics data based on spectroscopic observations with the Russian 6-m telescope, we estimate the shape of dark matter halo in several galaxies. Using 3D hydrodynamic simulations we also study the dynamics and evolution of the polar component.

With the help of high-resolution long-slit and integral-field spectroscopy observations, the number of confirmed cases of galaxies with counterrotation is increasing rapidly. The evolution of such counterrotating galaxies remains far from being well understood. In this talk I will discuss the dynamics of counterrotating collisionless stellar disks by means of N -body simulations.

7. Why cosmologically-relevant particle dark matter cannot exist

Pavel Kroupa, University of Bonn

Abstract: I will discuss the detailed structure of the satellite systems of the Milky Way and of Andromeda on scales of 500

kpc, the 3D structure of the Local Group of galaxies on a scale of 3 Mpc, the distribution of galaxies in the Local Volume on a scale of 16 Mpc and the distribution of matter in the Local Universe on a scale of $1+\text{Gpc}$. The dark-matter-based SMOc is incompatible on all these scales with the data.

8. Multi-spin systems: an observational overview

Alessandro Pizzella, University of Padua

Abstract: Multi-spin systems are reviewed with an observational approach: Polar Ring galaxies, decoupled cores and counter-rotating galaxies. We consider mostly morphological and kinematical observations. We then show some recent results obtained with modern integral field instruments and discuss possible future developments.

9. Photometric characteristics of polar-ring galaxies

Vladimir Reshetnikov, St.Petersburg State University, Russia

Abstract: Our current knowledge of the photometric structure of polar-ring galaxies and related objects is reviewed.

10. The spins of galaxies in CALIFA

Jacob Walcher, Leibniz Institut für Astrophysik

Abstract: I will summarize results from the CALIFA survey on galaxy spins. Particular highlights include the first determination of the velocity function and the angular momentum distribution of galaxies of all Hubble types.

ABSTRACTS: Talks

1. On the outer photometric halos of bright early type galaxies

Massimo Capaccioli (Naples University Federico II, Physics Dept.), M. Spavone, A. Grado, E. Iodice, L. Limatola, N.R. Napolitano, P. Schipani, M. Cantiello,

Abstract: Taking advantage of VST/OmegaCAM deep images we have investigated the *g*-band photometric behavior of the halos of six bright early type galaxies, NGC 4472, NGC 4365, NGC 3923, NGC 1399, NGC 5044, and NGC 5846, out to very feeble surface brightness levels. We find that the parameter driving the behavior of the halo light distribution is the average surface brightness, which for our sample spans a range of one dex. The light profiles, which cluster into two distinct groups separated by a gap whose reality calls for a confirmation, exhibit three regimes – inner, intermediate, and outer – with rather neat break points and gradients correlated with the effective surface brightness. A hint is found of the existence of a limiting maximum size at $R_{e,maj} \sim 2$ kpc. We confirm a significant, and possibly coherent, increase of the flattening from the bulge to the inner halo.

2. New measurements of gas metallicity in polar-ring galaxies

Oleg Egorov (Sternberg Astronomical Institute of Lomonosov Moscow State University), Moiseev A.V.

Abstract: We present the results of long-slit observations of the sample of kinematically confirmed polar-ring galaxies from SPRC catalogue performed at 6-m SAO RAS telescope. The aim of our study was the detection and analysis of the gas emission in both main and polar discs of the galaxies together with their stellar population parameters in order to improve the ‘luminosity-metallicity’ statistical relation. We estimated the gas chemical abundance for 8 SPRC galaxies. The metallicities obtained are almost the same for main and polar components that rules out the cold accretion scenario for the considered polar structures.

3. Gas kinematics of void galaxies: searching for evidences of gas accretion

Evgeniya Egorova (Sternberg Astronomical Institute),
A. Moiseev, O. Egorov

Abstract: We selected several objects of intermediate luminosity in the Eridanus and Lynx-Cancer voids that have perturbed morphology or show some deviation from the standard “metallicity-luminosity” relation for denser environment, and have relatively low metallicity. We performed observations with scanning Fabry-Perot interferometer for our sample objects. In most of them including two isolated galaxies without any known companions we observe non-circular motions that might be caused by accretion of external gas or by tidal disturbance.

4. Counter-rotating stellar population in disc galaxies

Ivan Katkov (Sternberg Astronomical Institute of the Lomonosov Moscow State University), Olga Sil'chenko, Igor Chilingarian, Victor Afanasiev, Roman Uklein, Oleg Egorov

Abstract: Many galaxies contain kinematically decoupled structures of different types, one such a type being counter-rotating stellar discs. Recently, full-spectral fitting techniques have been exploited to extract kinematical features and stellar population properties of counter-rotating discs from integrated light spectra of galaxies. Studies of stellar counter-rotating components in disc galaxies shed light on processes of accretion and mergers which are thought to be responsible for their formation.

I will review recent results in this field and present couple examples of our study of counter-rotation in disc galaxies. I will pay special attention to the comparison of two independent approach – spectral decomposition and photometrical analysis in case of NGC 448 where we demonstrated a perfect agreement between them. Finally, I am going to discuss prospectives of study of counter-rotation phenomena from the IFU surveys (SAMI, MANGA) point of view.

5. PNe as tracers of stellar streams: spectroscopy of PNe in the outskirts of M31 and region of Canis Major in the Milky Way

Alexei Kniazev (South African Astronomical Observatory), E.K. Grebel

Abstract: The star formation histories for the nearest galaxies

can be obtained with the color-magnitude diagrams of resolved stars. However, the results should be compared with further observational data that can be obtained for these galaxies. One such complementary means a study of Planetary Nebulae (PNe) that arise from intermediate- and low-mass stars and can be used simultaneously as age, kinematics and metallicity tracers. We developed a method to select PNe candidates using SDSS photometric data and published its result to the entire M31 SDSS data set. In the outer regions of M31, new found PNe candidates trace different well-known morphological features. I will present new medium-resolution spectroscopic data that are used to investigate the nature and evolution of some these substructures in the outskirts of M31 and will show our result of the Southern African Large Telescope (SALT) spectroscopic observations for PNe and PN candidates in Canis Major, a sky region where the remnant of a disrupted dwarf galaxy cannibalized by the Milky Way may be located.

6. Star-formation driven galactic winds in UGC 10043

Carlos Lopez Coba (Instituto de Astronomia – UNAM),

Sebastain F. Sanchez, Theodoros Bitsakis, Lluís Galbany, Christophe Morisset, Joss Bland-Hawthorn, Alexei Moiseev, D. Oparin, Mariana Cano, Carolina Kehring and other CALIFA members

Abstract: We study the galactic wind in the edge-on spiral galaxy UGC 10043 with the use of Integral Field Spectroscopy. The physical conditions of the wind were constrained based on the properties of the ionized gas. The emission of ionized gas for different species was detected up to 4 kpc above the galactic disk. With the implementation of shock models from

MAPPINGS we show that the wind is consistent with a fast velocity shock model < 400 km/s. Additionally we complement the study with high resolution FPI observations from the SCORPIO-2 spectrograph of the BTA telescope.

7. Merging in the record-low gas metallicity system DDO 68

Dmitry Makarov (SAO RAS), Lidia Makarova, Simon Pustilnik, Svyatoslav Borisov

Abstract: We study the resolved stellar populations of DDO 68 using deep images from the HST archive. Its morphology shows sign of strong tidal disturbance. We determined that about 60% of stars have been formed during the initial period of star formation about 12–14 Gyr ago. During the next 10 Gyr DDO 68 was in the quenched state with only slight traces of star formation from 1 to 12 Gyr. The onset of the most recent burst of star formation have occurred about 300 Myr ago. We find that the young population with ages of several million to a few hundred million years is widespread over various parts of DDO 68, indicating an intense star formation episode with the high mean rate of $0.15 M_{\odot}/\text{yr}$. The properties of the northern periphery of DDO 68 can be explained by an ongoing burst of star formation induced by a minor-merger of a small gas-rich extremely metal-poor galaxy with a more typical dwarf galaxy.

8. Counter-rotating gas in Andromedas bulge

Anne-Laure Melchior (LERMA, Observatoire de Paris)
F. Combes

Abstract: Andromeda is known to have a rich collisional past, traced by numerous tidal streams. It also hosts a supermassive black hole, a witness of the galaxy build-up via several minor/major mergers. This region is typical of a low-ionisation nuclear emission region of a green-valley galaxy in which stellar formation has been quenched. In the central part, we have found with IRAM molecular gas observations a complex dynamical configuration with some counter-rotating gas at 1 kpc from the centre. Along the minor axis, where disc gas at the systemic velocity is expected, two other components have been detected on both sides of the systemic velocity. This weak and clumpy gas reveals the superimposition of three structures. Beside the main large-scale disc seen in projection, we propose a tilted inner disc and an inner ring detected in infrared. This configuration is compatible with the scenario of a frontal collision with M32 200 Myr ago proposed by Block et al.

9. Multi-spin galaxies on the 6-m telescope: forty-years history of researches

Alexei Moiseev, SAO RAS

Abstract: A briefly review of the history of the investigations of multi-spin and related phenomena at the Russian 6-m telescope is presented. Different types of kinematically decoupled systems were studied since the first years of telescope operation: interacting galaxies, external polar rings

and circumnuclear polar and inclined discs, counter-rotated systems, warps and tidally-induced filaments. The evolution of observational technique is also considered, from the first long-slit spectrographs to different 3D spectroscopic devices.

10. Counterrotating starforming disk in the S0 galaxy IC 560

Irina Proshina (Sternberg Astronomical Institute, M.V. Lomonosov Moscow State University), Kniazev A.Y., Sil'chenko O.K.

Abstract:

By exploring the long-slit spectrograph RSS of the Southern African Large Telescope, we have obtained and reduced long-slit spectrum of the S0 galaxy IC 560. The line-of-sight velocity profiles of the ionized gas and of the stars in the galaxy were calculated. We have found that the gaseous disk of IC 560 is counterrotating with respect to the stellar disk. In the center of IC 560 we have detected strong emission lines $H\alpha$, $[N II]6583$, $[S II]6716.4, 6730.6$ and $[O III]5007$. We have analyzed the ratios of the different emission line intensities to reveal gas excitation mechanism by using BPT diagnostic diagrams. We have detected the ring-like region within $4'' < |r| < 12''$ where gas excitation is dominated by star-forming process. Also we have compared stellar and gaseous metallicities at the same distance from the center of the galaxy; the gas reveals solar oxygen abundance while the stellar population at the same radius is metal-poor.

11. Gas-rich dwarfs in nearby voids as probes of cold accretion

Simon Pustilnik (SAO RAS), Chengalur J.N., Egorova E.S.

Abstract: Recent theoretical study of void structure and dynamics (Aragon-Calvo and Szalay 2013) reveals their complex picture at different spatial scales. In contrast to high-speed turbulent matter flows in large filaments, void flows at 1–2 Mpc scale are laminar and low amplitude ($\sim 10–20$ km/s). Stationary accretion of this matter by void low-mass halos provides very special conditions for void galaxy formation and evolution. In the frame of the ongoing project for multi-method study of large galaxy sample in a nearby Lynx-Cancer void (over 100 objects), we obtain with the Indian radio telescope GMRT HIdensity and velocity maps for a subsample of 20 gas-rich galaxies. These maps are examined along with other galaxy properties to check possible tracers of cold accretion such as misalignment of gas and stellar morphology and/or kinematics, disturbances and gas appendages in isolated objects, etc. For several void galaxies such evidences are found. We discuss the new steps necessary to advance in better comparison of observations and model predictions. One of them is the need of void model substructure and dynamics with the mass resolution of 1–2 orders of magnitude higher than the current limit for the dark matter halo mass of $10^{10} M_{\odot}$ in Aragon-Calvo and Szalay (2013), which corresponds to a galaxy absolute magnitude of $M_B \sim -17$.

12. The gaseous disk orientations and origin: evolution of S0 galaxies

Olga Sil'chenko (Sternberg Astronomical Institute of the Lomonosov Moscow State University) and Alexei Moiseev

Abstract: By trying to understand the origin of extended gaseous disks in S0 galaxies, we have obtained full-sized gas velocity fields for 16 galaxies by observing strong emission lines [N II]6583, $H\alpha$, [O III]5007 with the scanning Fabry–Perot interferometer of the Russian 6-meter telescope. Indeed, misalignments between the rotation axes of the gaseous and stellar disks are frequent in the sample galaxies; sometimes we see strong warps of the gaseous disk planes. By comparing the space orientations of the ionized-gas disks with those of the stellar disks and of the outer HI disks, we discuss the possible outer gas accretion and the subsequent dynamical evolution of the gas distributions.

13. Velocity dispersion of ionized gas behind shockwaves in multi-spin systems

Evgenii Vasiliev, SFedU & SAO RAS

Abstract: Using 3D numerical simulations we study the evolution of the $H\alpha$ intensity and velocity dispersion behind shockwaves in the interstellar gas. We compare the ' $H\alpha$ intensity — velocity dispersion' diagram obtained for simulated gas flows to that observed in dwarf galaxies. We discuss possible features in such diagrammes in the interstellar medium of both multi-spin and colliding systems.

14. Intergalactic sites of star formation in the vicinity of interacting galaxies

Anatoly Zasov, Sternberg Astronomical Institute (MSU)

Abstract: A short review of the properties of intergalactic regions of star formation observed close to the main bodies of interacting galaxies will be given, including the new long-slit observations of some tidal dwarf candidates at 6m telescope. I will mostly focus on two open questions: physical conditions which may trigger star formation and the stability (survivability) of intergalactic stellar islands.

ABSTRACTS: Posters

1. Ionized gas in the galaxies with fading star formation: distribution and kinematics

Tatiana Bryukhareva (MSU Sternberg Astronomical Institute),
Alexei Moiseev

Abstract: We study the structure and kinematics of the ionized gas in four early-type galaxies, at different stages of the transition from the blue cloud of star-forming galaxies to the sequence of passively evolving galaxies. This sample were already studied in HI by Wong et al (2015). Some of galaxies present spatial offsets between gas reservoir and the stellar components. Consideration of ionized gas properties helps us to draw a conclusion about the processes that lead to a fast truncation of star formation that occurs on time-scales of several hundred Myr to 1 Gyr. Because of the lack of neighboring galaxies, this rapid quenching appears most likely due to AGN activity. Using long-slit and 3D spectroscopic observation at the Russian 6-m telescope, we attempt to describe the misalignment between gaseous and stellar discs.

2. Every galaxy in its humour: three galaxies with the suspected unusual stellar M/L appear to have the kinematically decoupled inner discs

Anna Saburova, (MSU Sternberg Astronomical Institute), Ivan Katkov, Anatoly Zasov, Roman Uklein

Abstract: We performed long-slit spectral observations of three galaxies which were previously suspected as the galaxies

with peculiarly low mass-to-light ratios of stellar population based on the galaxy mass estimates from the HI linewidths: NGC 5347, UGC 1344, UGC 11919. The observations were conducted with the Russian 6-m BTA telescope and were aimed to clarify the kinematics and stellar population of the galaxies. The results of the observations disproved the peculiar mass-to-light ratio in all three galaxies. For UGC 11919 the inclination angle appears to be lower than it follows from the photometry, NGC 5347 possesses high velocity dispersion which leads to the high asymmetric drift correction increasing the velocity, the measured rotation velocity of UGC 1344 turned out to be at least 3 times higher than that calculated from the HI linewidth. The interesting detail that we found and studied in all these galaxies is the presence of kinematically decoupled nuclear component. In UGC 11919 and NGC 5347 the age of stellar population is lower for the innermost part in comparison to that of the bulge. The metallicity of the central region is higher than that of the bulge for NGC 5347 and UGC 1344 and slightly lower for UGC 11919, revealing the possible different formation histories of these nuclear components. All three galaxies possess bars, which could provide conditions for the formation of the nuclear kinematically distinct structures.

PROGRAM

SUNDAY, September 25

Reception and opening registration desk

MONDAY, September 26

08:00 – 09:00

Breakfast

9:00 – 9:10

Valery Vlasyuk (SAO RAS director)

Opening talk

MULTI-SPIN AND POLAR STRUCTURES

9:10 – 9:50 (invited talk)

Alessandro Pizzella

Multi-spin systems: an observational overview

9:50 – 10:30 (invited talk)

Vladimir Reshetnikov

Photometric characteristics of polar-ring galaxies

10:30 – 11:00

Massimo Capaccioli

On the outer photometric halos of bright early type galaxies

11:00 – 11:20

Coffee-break

11:20 – 11:50

Oleg Egorov

New measurements of gas metallicity in polar-ring galaxies

ENVIROMENT EFFECTS, INTERACTION

11:50 – 12:30 (invited talk)

Daniela Bettoni

The environment of multi-spin galaxies and its role in their formation and evolution

12:30 – 13:00

Anatoly Zasov

Intergalactic sites of star formation in the vicinity of interacting galaxies

13:00 – 14:00

Lunch

14:00 – 14:30

Alexei Kniazev

PNe as tracers of stellar streams: spectroscopy of PNe in the outskirts of M31 and region of Canis Major in the Milky Way

14:30 – 15:00

Dmitry Makarov

Merging in the record-low gas metallicity system DDO 68

15:00 – 15:30

Elena Bannikova

Lagrangian ring

Excursion to the ancient Alan city

19:00

Welcome cocktail

TUESDAY, September 27

08:00 – 09:00

Breakfast

IFU OBSERVATIONS AND SURVEYS

9:00 – 9:40 (invited talk)

Nicolas Bouche

The angular momentum of $z=1$ star forming galaxies from gas
(and stars) kinematics with MUSE

9:40 – 10:20 (invited talk)

Jacob Walcher

The spins of galaxies in CALIFA

10:20 – 11:00 (invited talk)

Dmitry Bizyaev

MaNGA view of Multi-Spin Galaxies

11:00

Coffee-break

GAS-STARS KINEMATICS, COUNTER-ROTATION, ACCRETION

11:20 – 12:00 (invited talk)

Gyula Józsa

HI in multi-spin systems, including problems of gas accretion

12:00 – 12:30

Olga Sil'chenko

The gaseous disk orientations and origin: evolution of S0 galaxies

12:30 – 13:00

Ivan Katkov

Counter-rotating stellar population in disc galaxies

13:00 – 14:00

Lunch

14:00 – 14:30

Anne-Laure Melchior

Counter-rotating gas in Andromeda's bulge

14:30 – 15:00

Irina Proshina

Counterrotating star-forming disk in the S0 galaxy IC 560

15:00 – 15:30

Alexei Moiseev

Multi-spin galaxies on the 6-m telescope: forty-years history of researches

Excursion to the 6-m telescope

19:00 – 20:00

Dinner

WEDNESDAY, September 28

08:00 – 09:00

Breakfast

COSMOLOGY AND SIMULATIONS

9:00 – 9:40 (invited talk)

Noah Brosch

Very low surface brightness features near edge-on disk galaxies

9:40 – 10:20 (invited talk)

Sergey Khoperskov

Dynamical modelling of multi-spin galaxies

10:20 – 11:00 (invited talk)

Pavel Kroupa

Why cosmologically-relevant particle dark matter cannot exist

11:00 – 11:20

Coffee-break

11:20 – 11:50

Simon Pustilnik

Gas-rich dwarfs in nearby voids as probes of cold accretion

11:50 – 12:20

Evgeniya Egorova

Gas kinematics of void galaxies: searching for evidences of gas accretion

12:20 – 12:50

Margarita Sharina

Globular clusters with multiple stellar populations. Where they came from?

12:50 – 13:00

Poster session

13:00 – 14:00

Lunch

STAR FORMATION AND TRANSFER OF ANGULAR MOMENTUM

14:00 – 14:30

Evgenii Vasiliev

Velocity dispersion of ionized gas behind shockwaves

14:30 – 15:00

Carlos Lopez Coba

Star-formation driven galactic winds in UGC 10043

15:00 – 15:40

Massimo Capaccioli

CONFERENCE SUMMARY

Excursion to RATAN-600 radiotelescope

Conference dinner

THURSDAY, September 29

08:00 – 09:00

Breakfast

Excursion (depends on weather)

FRIDAY, September 30

Departure day

FOR NOTES

