



IAU Symposium 355

The Realm of the Low-Surface-Brightness Universe

Programme
(R=INVITED REVIEW, IT=INVITED TALK)

MONDAY July 8th

09:00 Casiana Muñoz-Tuñón (Deputy Director, IAC, Spain)
Welcome

09:15 David Valls-Gabaud (Obs. Paris, France)
Introduction and overview

Chairperson: Pierre-Alain Duc

09:30 **R** Michael Disney (Cardiff Univ., UK)
Hidden galaxies: but not for long

10:00 **R** Eva Grebel (ARI, Germany)
The renaissance of LSB galaxies

10:30 *Coffee break*

Session 1A State-of-the-art in current and future ground-based instrumentation

11:00 **R** Christopher Mihos (CWRU, USA)
Deep imaging of galaxies and clusters: successes and challenges

11:30 Matthew Lehnert (IAP, France)
Low surface brightness molecular and atomic line emission in distant galaxies

11:45 **R** David Martínez Delgado (ARI, Germany)
Ultra-deep imaging with amateur telescopes

12:15 Raúl Infante Sainz & Alex Roig (IAC; Astroprades, Spain)
A 100h imaging of M101 with a small telescope: reaching the limits of amateur telescopes for low surface brightness science

12:30 *Lunch*

Session 1B

State-of-the-art in current and future space-based instrumentation

Chairperson: Noah Brosch

14:30 **IT** Sarah Brough (UNSW, Australia)
LSST and the LSB universe

14:55 **IT** Johan Knapen (IAC, Spain)
Going towards wide-area ultra-deep imaging surveys

15:20 Lee Spitler (Macquarie Univ., Australia)
The Huntsman Telescope

15:35 Jean-Charles Cuillandre (CEA, France)
The Canada-France imaging survey as a Euclid precursor: blind all-sky low surface brightness survey of the northern sky

15:50 **IT** Armando Gil de Paz (UCM, Spain)
Darkness revealed: The MESSIER surveyor

16:15 Vincent Picouet (LAM, France)
FIREBall-2: The first stratospheric balloon coupled to a multi object spectrograph to reveal the CGM at $z \sim 0.7$

16:30 Sona Hosseini (JPL, USA)
AMUSS – Astrophysics Miniaturized UV Spatial Spectrometer for spectroscopic studies of diffuse astrophysical objects

16:45 *Coffee Break*

Session 2

Data analysis in LSB imaging

Chairperson: Lee Spitler

17:15 **IT** Sugata Kaviraj (Univ. Hertfordshire, UK)
The low-surface-brightness universe: the new frontier in the study of galaxy evolution

17:40 **IT** Mohammad Akhlaghi (IAC, Spain)
Digging out the low-surface-brightness universe: understanding and constraining the limits of methods used

18:05 Ignacio Trujillo (IAC, Spain)
Reproducibility in ultra-deep imaging

18:20 Cristina Martínez Lombilla (UNSW, Australia)
Brightness overestimation due to PSF in very faint galaxy structures: the thick discs case

18:35 Alejandro S. Borlaff (ESA, Spain)
New limits to low surface brightness details: the Hubble Ultra Deep Field even deeper

18:50 *Poster presentations (#15 Kotulla, #18 Lee, #27 Mehrabani, #34 Sharbaf, #40 Weimann)*

19:00 *Welcome Reception*

TUESDAY July 9th

Session 3

Dust particles and grains: from the Zodiacal light to the ISM cirri

Chairperson: Eva Villaver

09:00 **R** Anny-Chantal Levasseur-Regourd (LATMOS/IPSL, France)

Progress in Zodiacal light understanding: significance for observations of faint extended sources, properties and sources of interplanetary dust, and clues to Solar System evolution

09:30 **IT** Jérémie Lasue (IRAP, France)

Interpreting the Zodiacal light observations from the properties of interplanetary and cometary dust particles

09:55 **R** François Boulanger (ENS, France)

Diffuse light from interstellar cirrus clouds across the electromagnetic spectrum

10:25 **IT** Sébastien Viaene (Ghent Univ., Belgium)

Deriving diffuse dust properties from UV and optical observations

10:50 Javier Román (IAA, Spain)

Galactic cirri in deep optical imaging

11:05 *Coffee break*

Session 4

The LSB circumstellar medium and orphan stars

Chairperson: Sarah Brough

11:35 **R** Raghvendra Sahai (JPL, USA)

Faint but not forgotten: astrospheres around dying stars

12:05 **R** Eva Villaver (UAM, Spain)

The tale of the lost mass

12:35 **IT** Dominik Bomans (Bochum, Germany)

Multi-wavelength observations of Orphan SN and other transients as signposts for very low surface brightness structures

13:00 Thomas Sedgwick (LJMU, UK)

Low surface brightness galaxies & the galaxy stellar mass function from core-collapse supernovae

13:15 *Lunch*

Session 5A

Low surface brightness features around and within galaxies

Chairperson: Gaspar Galaz

- 15:00 **R** Denija Crnojević (Univ. Tampa, USA)
Near-field cosmology with low surface brightness features
- 15:30 **IT** Allison Merritt (MPIA, Germany)
A survey of observed and simulated stellar halos around Milky Way-like galaxies in the nearby universe
- 15:55 **IT** Chris Brook (IAC, Spain)
Forming low surface brightness objects in simulations
- 16:20 Bärbel Koribalski (CSIRO, Australia)
Hydrogen tails, plumes, and filaments
- 16:35 *Coffee break*
- 17:05 **IT** Pierre-Alain Duc (Obs. Strasbourg, France)
MATLAS: An investigation of the mass assembly of galaxies with their fine structures, satellite and globular cluster populations
- 17:30 Sarah Pearson (FICCA, USA)
Detecting thin stellar streams in external galaxies: resolved stars and integrated light
- 17:45 Nushkia Chamba (IAC, Spain)
The size of the galaxies in the era of ultra-deep imaging
- 18:00 Sakurako Okamoto (Subaru, Japan)
Signatures of on-going interactions at M81 group centre in the low-surface-brightness features
- 18:15 Oliver Müller (Obs. Strasbourg, France)
Hunting for low-surface-brightness features in nearby galaxy groups
- 18:30 Noah Brosch (Tel Aviv, Israel)
Low-surface-brightness features in Hickson compact groups
- 18:45 Sébastien Comerón (U. Oulu, Finland)
The reports of thick discs' death are greatly exaggerated: thick discs are not artefacts caused by diffuse scattered light
- 19:00 *End of session*

WEDNESDAY July 10th

Session 5B

Low-surface-brightness features around and within galaxies

Chairperson: Stéphane Courteau

09:00 **R** David F. Malin (AAO, Australia)

Early photographic detection of LSB features

09:30 Raja Guhathakurta (UCSC, USA)

Dark matter and chemical enrichment in the low-surface-brightness outskirts of galaxies

09:45 In Sung Jang (Postdam, Germany)

Tracing the extended stellar outskirts of low-mass disk galaxies

10:00 Michal Bilek (Obs. Strasbourg, France)

Census of tidal features in nearby early-type galaxies

10:15 Fernando Buitrago (IASS, Portugal)

Why finding an extended galaxy in a high redshift survey is not an annoyance but a potential treasure trove

10:30 Yutaka Komiyama (NAOJ, Japan)

Low-surface-brightness features in the Local Universe viewed from the Subaru Prime Focus

10:45 **Coffee break**

Session 6A

The nature of ultra-diffuse galaxies and other LSB galaxies

Chairperson: Fernando Buitrago

11:15 Anna Ferré-Mateu (ICCUB, Spain)

On the nature of the ghostly ultra diffuse galaxies in the Coma cluster

11:30 Tomás Ruiz-Lara (IAC, Spain)

The stellar content in ultra diffuse galaxies: contrasting the galaxy “lacking dark matter” with other Coma cluster UDGs

11:45 Daniel J. Prole (Cardiff Univ., UK)

The formation of ultra diffuse galaxies: observational evidence

12:00 Luis E. Pérez Montaño (UNAM Morelia, Mexico)

Halo Structural parameters of low surface brightness galaxies

12:15 Poster presentations (#26 Martínez-Vázquez, #33 Saremi, #09 Grishin, #11 Javadi, #13 Kemp, #28 Park, #32 Ribbeck, #36 Walker, #24 Mancillas, #05 Brosch, #14 Kemp, #35 Stein, #39 Zemaitis)

13:00 **Lunch**

Session 6B

The nature of ultra-diffuse galaxies and other LSB galaxies

Chairperson: Mireia Montes

15:00 R Dennis Zaritsky (U. Arizona, USA)
Searching for SMUDGes

15:30 Samuel Boissier (LAM, France)
Ultra-diffuse and low-surface-brightness galaxies in the Virgo cluster: constraints from the VESTIGE and GUViCS surveys, and simple models

15:45 Gaspar Galaz (PUC, Chile)
Unavoidable questions about giant low-surface-brightness galaxies

16:00 Anna Saburova (SAI, Russia)
Unveiling the origin of giant low surface brightness discs: results of the long-slit spectral observations

16:15 Jeong Hwan Lee (U. Seoul, South Korea)
Hunting distant UDGs in very massive clusters with HST

16:30 Coffee Break

17:00 Stéphane Courteau (Queen's U., Canada)
Structural and dynamical properties of LSB galaxies

17:15 Igor Chilingarian (SAO, USA)
Internal dynamics and stellar content of ultra-diffuse galaxies in the Coma cluster prove their evolutionary link with dwarf early-type galaxies

17:30 Rhys Taylor (Prague, Czech Republic)
Optically dark hydrogen clouds from the Arecibo Galaxy Environment Survey: dark galaxies or debris?

17:45 Pavel Mancera-Piña (Kapteyn, The Netherlands)
The startling dynamics of HI-Rich ultra-diffuse galaxies

18:00 Salvador Cardona Barrero (IAC, Spain)
Dispersion vs rotation support in ultra-diffuse and low surface brightness galaxies

18:15 Anton Afanasiev (SAI, Russia)
Internal dynamics of the extended dwarf spheroidal galaxy KDG64: bridging the gap between ultra-diffuse galaxies and dwarf spheroidals

18:30 Poster presentations and discussions (#02 Bennet, #04 Bouquin, #19 Li, #06 Díaz-García, #21 Malayi, #31 Rey, #37 Watkins, #12 Junais, #16 Laine, #17 Lee, #10 Gomes)

19:00 End of session

THURSDAY July 11th

Session 7

The circumgalactic medium of low- and high-redshift galaxies

Chairperson: Matthew Lehnert

09:00 **R** Sebastiano Cantalupo (ETH, Switzerland)

Illuminating the cosmic web and the circumgalactic medium with fluorescent Lyman-alpha emission

09:30 **IT** Matthew Hayes (Stockholm Univ., Sweden)

The circumgalactic medium of low- redshift galaxies, probed by emission lines at low surface brightness

09:55 Deborah Lokhorst (Univ. Toronto, Canada)

Direct detection of the circumgalactic medium using Dragonfly

10:10 Jorge Sánchez Almeida (IAC, Spain)

GTC-based search for diffuse gas around local gas-accreting galaxies

10:25 Poster presentations and discussions (#29 Pérez-Fournon, #30 Pérez Hernandez)

11:00 *Coffee break*

11:30 **IT** Freeke van de Voort (MPA, Germany)

Cosmological simulations of the CGM at sub- kpc resolution

11:55 Genoveva Micheva (AIP, Germany)

Deep surface photometry of the Lyman Alpha Reference Sample (LARS)

12:10 Helmut Dannerbauer (IAC, Spain)

Surprising existence of circumgalactic molecular medium in a galaxy protocluster at $z=2.2$

12:25 Andrea Afruni (Kapteyn, The Netherlands)

Understanding the cool circumgalactic medium of passive galaxies

12:40 Poster presentations and discussions (#38 Wright, #23 Mancillas, #25 Mancillas, #03 Bilek, #01 Amiri, #20 De Oliveira)

13:00 *Lunch*

Session 8

The intracluster light and its role in galaxy evolution in clusters

Chairperson: Matthew Hayes

15:00 **R** Mireia Montes (UNSW, Australia)

The intracluster light and its role in galaxy evolution in clusters

15:30 **IT** Emmanuele Contini (Nanjing Univ., China)

Intracluster light: its formation and main properties

15:55 Marilena Spavone (Obs. Naples, Italy)

Stellar haloes from deep VST surveys: comparing observations and theory

16:10 Brandon Kelly (LJMU, UK)

Intracluster light as a proxy for host cluster properties

16:25 *Coffee break*

17:00 **IT** Florence Durret (IAP, France)

Intracluster light and its influence on galaxy evolution in clusters

17:25 **IT** Yolanda Jiménez-Teja (Obs. Rio de Janeiro, Brazil)

Unveiling the dynamical stage of massive clusters through the study of the intracluster light

17:50 Enrichetta Iodice (Obs. Capodimonte, Italy)

The deep (photometric and spectroscopic) surveys of the Fornax cluster: exploring the faintest regions of the bright ETGs inside the virial radius

18:05 Isaac Alonso Asensio (IAC, Spain)

Similarity between stellar and total dark matter density distributions in the intra-cluster volume: a view from simulations

18:20 Jongwan Ko (KASI, South Korea)

Evidence for the existence of intracluster light ~5 billion years after the Big Bang

18:35 Michael Wilkinson (U. Groningen, The Netherlands)

Sourcerer: a robust, multi-scale source extraction tool suitable for faint and diffuse objects*

18:50 Poster presentations and discussions (#07 Ebrova, #22 Mancillas, #08 Ellien)

19:00 *End of session*

20:00 *Conference dinner (Hotel Mencey, Santa Cruz de Tenerife)*

FRIDAY July 12th

Session 9

The cosmic web of large-scale filaments

Chairperson: Simon Driver

- 09:00 **R** José Fonseca (U. Padova, Italy)
Line intensity mapping: a “novel” window to the cosmic web
- 09:30 **IT** Ewald Puchwein (AIP, Germany)
Lyman-alpha emission and absorption by the cosmic web
- 09:55 **IT** Nicolas Tejos (PUCV, Chile)
Looking for a WHIM in the large-scale filaments of the cosmic web
- 10:20 *Coffee break*

Session 10

The UV / optical / IR cosmological background radiation

Chairperson: Florence Durret

- 10:50 **R** Jayant Murthy (IIA, India)
The UV and optical sky background
- 11:20 **IT** Alberto Dominguez (UCM, Spain)
The extragalactic background light in the Fermi- LAT era
- 11:45 **IT** Simon Driver (UWA, Australia)
Measuring energy production in the Universe over all wavelengths and all time
- 12:10 Christopher Mihos (CWRU, USA)
Summary of the conference
- 12:40 End of conference**
- 13:00 *Lunch*
- 14:15 *Visit to Teide Observatory*
- 20:30 *Return from visit*

Social Programme

- Monday, July 8th
19:00 Welcome Reception.
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Cafeteria of the Aulario Central, Guajara Campus,
University of La Laguna (conference venue)

- Thursday, July 11th
20:00 Dinner at Hotel Iberostar Grand Mencey
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- Friday, July 12th
14:15 to 20:00 Excursion to Teide Observatory in Tenerife
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Buses leave from Conference Venue at 14:15

Return to the venue expected at 20:00

(Google Maps link: Mirador observatorio del Teide)

<https://goo.gl/maps/WZsS6jd5SFVgSMMr9>

- Saturday, July 13th
08:00 to 19:30 Excursion to Roque de los Muchachos Observatory, La Palma
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Flights:

NT 607 G 13JUL 6 TFNSPC HK15 0800 0830

NT 638 G 13JUL 6 SPCTFN HK15 1900 1930

Visit of the Observatorio del Roque de los Muchachos (ORM)

(with guide from Starlight)

11:00 Reception at ORM. Coffee + cakes!

11:30 Visit to MAGIC

12:30 Visit to GTC

13:30 Lunch at ORM Residencia

14:30 Visit to WHT