

1-day BINA meeting

(Belgo-Indian Network for Astronomy & astrophysics)

WELCOME



1-day BINA meeting
12 October 2017, Brussels, Belgium



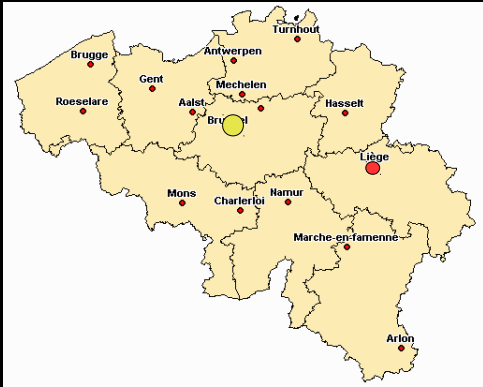
विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

सत्यमेव जयते

Peter De Cat
Royal Observatory of Belgium



***BINA** Belgo-Indian Network for Astronomy & astrophysics*



● Belgian partners

ROB (Royal Observatory of Belgium): P. De Cat (PI) et al.

ULg (Université de Liège): J. Surdej et al.

● Indian partners

ARIES (Aryabhata Research Institute of Observational Sciences; Nainital): S. Joshi (PI) et al.

BOSE (S.N. Bose Institute; Kolkata): S. Mondal et al.

IIA (Indian Institute of Astrophysics; Bangalore): G. Pandey et al.

IIST (Indian Institute of Space Science & Technology; Trivandrum): R. Lekshmi et al.

IUCAA (Inter-University Centre for Astronomy and Astrophysics; Pune): A.N. Ramaprakash et al.

PRL (Physical Research Laboratory; Ahmadabad): S. Naik et al.

TIFR (Tata Institute of Fundamental Research; Mumbai): A. Mazumdar et al.



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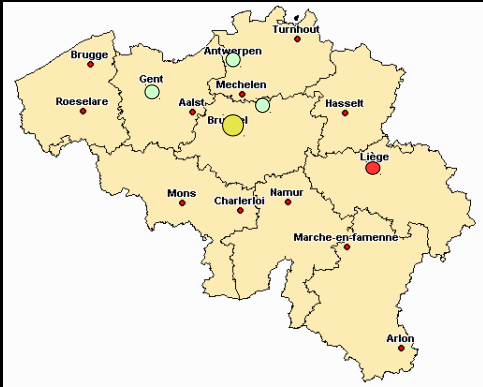


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ROB (Royal Observatory of Belgium): P. De Cat (PI) et al.

UA (Universiteit Antwerpen) & KUL (Katholieke Universiteit Leuven): K. Kolenberg et al.

UG (Universiteit Gent): M. Baes et al.

ULB (Université Libre de Bruxelles): A. Jorissen et al.

ULg (Université de Liège): J. Surdej et al.

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ARIES (Aryabhata Research Institute of Observational Sciences; Nainital): S. Joshi (PI) et al.

BOSE (S.N. Bose Institute; Kolkata): S. Mondal et al.

DU (Delhi University; Delhi): H.P. Singh et al.

IIA (Indian Institute of Astrophysics; Bangalore): A. Goswami et al.

IIST (Indian Institute of Space Science & Technology; Trivandrum): R. Lekshmi et al.

ISAC (ISRO Satellite Center; Bangalore): V. Girish et al.

IUCAA (Inter-University Centre for Astronomy and Astrophysics; Pune): R. Gupta et al.

KU (Kumaun University; Nainital): A.K. Durgapal et al.

NCRA (National Center for Radio Astrophysics; Pune): I. Chandra et al.

PRL (Physical Research Laboratory; Ahmadabad): S.K. Ganesh et al.

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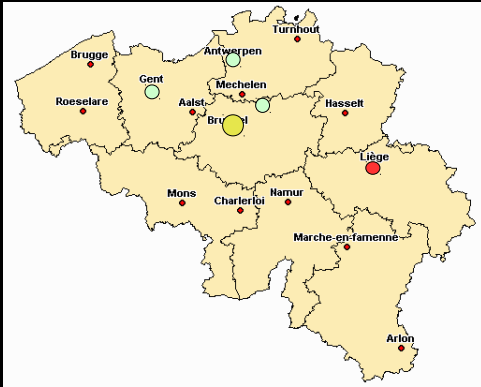


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● Objectives → Observatory of Devasthal



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Objectives → Observatory of Devasthal



- 3.6-m Devasthal Observatory Telescope (DOT)
 - ✓ 7% guaranteed time for Belgium
 - ✓ instruments described in the BINA proposal
 - 3-channel fast CCD photometer (cf. MAIA)
 - high-resolution spectrograph (cf. HERMES)



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 - ✓ instruments currently offered
 - optical imager (broad Johnson-Cousins + SDSS filters)
 - TIRCAM2 (1 to 5 μm ; 7 filters + 1 block disk)
 - [FOSC (350-900 nm; broad SDSS filters + narrow filters + grisms)]
 - [TANSPEC (0.55 to 2.54 μm ; 7 filters + spectroscopy)]



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- 4.0-m International Liquid Mirror Telescope (ILMT)
 - ✓ rotating container with mercury
 - ✓ unique instrument
 - ✓ strip of 0.5 deg around dec = 29.4 deg



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Objectives

- efficient scientific exploitation of observations of solar system, galactic and extragalactic celestial objects
- optimal development and commissioning of new instruments
- shared approach for:
 - ✓ preparation of observing proposals
 - ✓ procedures for data acquisition, reduction and back-up
 - ✓ scientific goals of common interest (e.g. asteroseismology, binaries, massive stars, abundance studies, galaxies, active galactic nuclei, quasars, ground-based follow-up observations for missions like GAIA, XMM-Newton, Integral)



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Network activities

- 4-day workshops: 1st in India (instrumentation & collaborations; 15-18/11/2016; ARIES, Nainital)
2nd in Belgium (first scientific results; 09-12/10/2018; ROB, Brussels)
- 2-week work visits: from India to Belgium: 6 colleagues
from Belgium to India: 2 colleagues



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 - 1st in India (instrumentation & collaborations; 15-18/11/2016; ARIES, Nainital)
 - 2nd in Belgium (first scientific results; 09-12/10/2018; ROB, Brussels)
 - 3rd in India (scientific impact of Indo-Belgian telescopes; 2020)
- 2-week work visits:
 - from India to Belgium: 6 colleagues + 5 colleagues
 - from Belgium to India: 2 colleagues + 5 colleagues



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● Telescopes of Interest next to the Indo-Belgian telescopes

1.04-m@ARIES : CCD & polarimeter

1.3-m@ARIES : multi-colour photometry

2.01-m@HCT : Himalaya faint object spectrograph, near-IR imager & optical CCD imager

1.2-m@PRL : NICMOS Infrared Camera and Spectrograph, Imaging Fabry-Perot Spectrometer, high time resolution Infrared Photometer, Optical Polarimeter, Fibre-linked Grating Spectrograph & high resolution optical spectrometer 'PRL Advanced Radial-velocity All-sky Search'

GMRT@NCRA-TIFR : 30 parabolic 45-m dishes spread over up to 25 km for radio interferometry

1.2-m@RMO : HERMES high-resolution spectroscopy

→ *Guaranteed access through Belgian partners of the HERMES consortium.*

6.0-m@SAO : main stellar spectrograph, nasmyth échelle spectrometer, digital speckle interferometer, spectral camera with optical reducer for photometric and interferometric observations, multi-mode spectrograph & multicolor panoramic photometer-polarimeter

→ *Access through bilateral programme between India and Russia.*

telescopes@SAAO

→ *Access through bilateral programme between India and South Africa.*

telescope@ESO

→ *Access through Belgian partners.*



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● Talks of Indian colleagues

10:00 "The Nainital-Cape Survey: A contribution to Asteroseismology" by Santosh Joshi (ARIES)

10:40 "Multi-domain analysis of the microlensing survey data" by Yogesh Joshi (ARIES)

11:40 "Dust in the Solar System and the Milky Way" by Shashikiran Ganesh (PRL)

12:20 "Current status of the available and forthcoming instruments on the 3.6-m Devasthal Optical Telescope"
by Yogesh Joshi (ARIES)

● Talks of Belgian colleagues

14:00 "The BINA collaboration: Science at the Royal Observatory of Belgium" by Peter De Cat et al. (ROB)

14:30 "HERMES: the spectrograph" by Gert Raskin (KULeuven) *(if his voice allows)*

14:45 "HERMES: the pipe-line reduction" by Yves Frémat et al. (ROB)

15:00 "Update of the ILMT" by Jean Surdej (ULg) *(if the Skype connection works)*

● Round table discussion

15:40 Suggested topics proposed by participants:

- ILMT large-survey: strategy and expected performance?
- Next steps in realisation of high-resolution spectrograph?
- How can we use facilities in best possible collaborative mode?
- Procedure for "targets of opportunity"?
- Belgian guaranteed time on DOT: end date?