

BRICS Symposium on Gravity, Astrophysics and Cosmology and South Africa 2018 Gravity Society Meeting

Protea Hotel Umhlanga Rocks, Umhlanga, South Africa

22nd to 26th October 2018

Final Program 22nd October

Monday, 22 October 2018

WHOLE DAY

Arrival and Registration

Monday, 22 October 2018

EVENING 6:30pm

Reception at the ground-floor bar, Protea Hotel Umhlanga Rocks

Tuesday, 23 October 2018

MORNING SESSION

Opening Ceremony & Welcome Session

Chair: *Jeff Murugan (UCT)*

09:00 – 09:10	Welcome Speech, Introduction to University of KwaZulu-Natal Prof. Deresh Ramjugernath (Deputy Vice Chancellor, UKZN)
09:10—09:20	Mr. Yunus Manjoo (National Research Foundation, South Africa)
09:20—09:25	Dr. Yu Pang, Science Office of Embassy of People's Republic of China
09:25—09:40	Bilateral collaboration between China and South Africa, and BRICS collaboration on astronomy and astrophysics, Prof. Yin-Zhe Ma (UKZN)
09:40—09:50	Introduction to BRICS Association of Gravity, Astrophysics and Cosmology Prof. Rong-Gen Cai (ITP, CAS) / Prof. Anzhong Wang (Baylor, USA)
09:50—10:00	Professor Sergio Colafancesco (1957–2018): His science, his work and his life, followed by 1-minute silence moment. Dr. Geoffrey Beck (Wits)
10:00 - 10:20	Group photo
10:20 - 10:50	Coffee Break

Plenary Session: Overview of Cosmology and Astrophysics

Chair: *Yin-Zhe Ma (UKZN)*

10:50 - 11:20	Invited Talk: Jin Chang (PMO, CAS) - DAMPE and its Latest Results
11:20 - 11:50	Invited Talk: Amanda Weltman (UCT) - Fundamental Physics in the Radio Sky
11:50 - 12:20	Invited Talk: Carlos Alexandre Wuensche (INPE) - The BINGO Telescope: an instrument to explore the Universe in the 21cm wavelength
12:20 - 13:50	Lunch

Tuesday, 23 October 2018

AFTERNOON SESSION

Plenary Session: Overview of Cosmology and Astrophysics (continued)

Chair: *Anthony Walters (UKZN)*

14:00 - 14:20	Geoff Beck (Wits) - Dark Matter gets DAMPE
14:20 - 14:40	Carlos Bengaly (UWC) - Probing the cosmological principle with radio continuum surveys

Poster session

Chair: *Denis Tramonte (UKZN)*

14:40 - 15:30	5-min presentation per poster: Heba Abdulrahman, Charissa Button, Simthembile Dlamini, Renier Hough, Ayodeji Ibitoye, Mthokozisi Mdlalose, Neo Namane, Dadasaheb Phadatare, Tanita Ramburuth-
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	Hurt, Anna-Mia Swart, Pieter Van der Merwe (11 poster speakers).
15:30 - 16:00	Coffee Break
Plenary Session: Gravity I (<i>This session is dedicated to SA gravity society meeting 2018 but all participants are welcome</i>) Chair: Sudan Hansraj (UKZN)	
16:00 - 16:20	Gareth Amery (UKZN) - A T2 separable g boundary for characterizing spacetime singularities
16:20 - 16:40	Anslyn John (Rhodes) - The post-Newtonian Jeans instability in an expanding universe

Wednesday, 24 October 2018

MORNING SESSION

Plenary Session: Cosmology I Chair: Sunil Maharaj (UKZN)	
09:00 - 09:30	Invited Talk: Andre Costa (USP) - Dark Energy: Theory and Observations
09:30 - 10:00	Invited Talk: Michelle Lochner (AIMS & SARA0) - Next Generation Observational Cosmology with Machine Intelligence
10:00 - 10:30	Kavilan Moodley (UKZN) - Dark energy and cosmic cross-correlations with HIRAX 21cm intensity mapping
10:30 - 11:00	Coffee break
Plenary Session: Gravitational wave I Chair: Anzhong Wang (Baylor University, USA)	
11:00 - 11:30	Invited Talk: Markus Boettcher (NWU) - The Dawn of Multimessenger Astronomy
11:30 - 12:00	Rong-Gen Cai (ITP, CAS) – Gravitational Waves as a standard siren
12:00 - 12:30	Nigel Bishop (Rhodes) - Gravitational wave estimation through characteristic extraction and matching
12:30 - 13:50	Lunch

Wednesday, 24 October 2018

AFTERNOON SESSION

Plenary Session: Cosmology II Chair: Yiming Hu (Purple Mountain Observatory)	
14:00 - 14:20	Vijay Singh (UNIZULU) - A new deceleration parameter for unified cosmological evolution
14:20 - 14:40	Denis Tramonte (UKZN) - Searching for baryonic imprint in LSS filaments
14:40 - 15:00	Kenda Knowles (UKZN) - Radio continuum in Galaxy Clusters
15:00 - 15:20	Charles Takalana (DST & Wits) - Differential Observation Techniques for the SZE-21cm and low frequency radio sources
15:20 - 15:50	Coffee break
Parallel Session: Cosmology III Chair: Yichao Li (UWC)	
15:50 - 16:10	Difu Shi (UKZN) - Using lightcone mock catalogues to estimate the CMB temperature dispersion due to kinetic Sunyaev-Zel'dovich effect
16:10 - 16:30	Nthabiseng Khanye (Wits) - Dark matter annihilation as the cause of diffuse radio emission in galaxy clusters
16:30 - 16:50	Elimboto Mwiki Yohana (UKZN) - Probing the nature of dark energy with 21-cm intensity mapping.
16:50 - 17:10	Albert Baloyi (UWC) - Testing the statistical isotropy of the universe with NVSS
17:10 - 17:30	Sinenhlanhla Sikhosana(UKZN) - Diffuse Radio Emission in ACTPol Clusters
Parallel Session: Gravity II (<i>This session is dedicated to SA gravity society meeting 2018 but all participants are welcome</i>) Chair: Addial Manjonjo (UKZN)	
15:50 - 16:10	Byron Brassel (UKZN) - A quasi-regular black hole in 5-D Einstein-Gauss-Bonnet gravity
16:10 - 16:30	Matondo Didier Kileba (UKZN) - Relativistic stars with conformal symmetry
16:30 - 16:50	Avishek Dusoye (UCT) - Investigating modified gravity models using CMB Power Spectrum

16:50 - 17:10	Aleksei Nikolaev (UKZN & USU) - Generalized Vaidya class 1 embedding
17:10 - 17:30	Muhammed Amir (UKZN) - Horizon structure of rotating Bardeen black hole and its shadow

Thursday, 25 October 2018

MORNING SESSION

Plenary Session: *Gravity III*

Chair: *Rituparno Goswami (UKZN)*

09:00 - 09:30	Yu-Qing Lou (THU) - Hypermassive Black Holes in the Early Universe
09:30 - 09:50	Laxman Katkar (Shivaji U) - Non-Static Spherically Symmetric Space-Times in Einstein-Cartan theory
09:50 - 10:10	Sanjay Wagh (CIRI) - Status of Indeterminacy principle in universal theory of relativity
10:10 - 10:40	Coffee break

Plenary Session: *Cosmology IV*

Chair: *Matt Hilton (UKZN)*

10:40 - 11:10	Invited Talk: Zong-Kuan Guo (ITP, CAS) - Primordial black holes from a double inflection points inflationary model
11:10 - 11:30	Larissa Satos (USTC) - Reconstructing the B-mode power spectrum using simulated Planck maps
11:30 - 11:50	Le Zhang (SJTU) - Statistical challenges in primordial gravitational-wave detection
11:50 - 13:30	Lunch

Afternoon Session: *Excursion to UKZN Westville Campus and Makaranga Garden*

Bus leaves the hotel at 13:30, comes back to hotel at 18:30.

Friday, 26 October 2018

MORNING SESSION

Plenary Session: *Gravity IV*

Chair: *Tulshiram Date (Shivaji U, India)*

09:20 - 09:50	Sarbari Guha (St. Xavier's, India) - Non-adiabatic spherical collapse in $f(R, T)$ theory of gravity
09:50 - 10:20	Aroonkumar Beesham (UNIZULU) - The contribution of Weyl to General Relativity
10:20 - 10:40	Ruihong Yue (YZU) - Thermodynamics of higher dimensional black hole in massive gravity
10:40 - 11:10	Coffee break

Plenary Session: *Radio Astronomy*

Chair: *Riven Narain (UKZN)*

11:10 - 11:40	Invited Talk: Moses Mogots (SAAO) - Star Formation and The Baryon Cycle in Galaxies
11:40 - 12:10	Invited Talk: Imogen Whittam (UWC) - The role of radio galaxies in galaxy evolution
12:10 - 12:30	Moumita Aich (UKZN) - The C-Band All Sky Survey
12:30 - 13:50	Lunch

Friday, 26 October 2018

AFTERNOON SESSION

Plenary Session: *Gravitational wave II*

Chair: *Yu-Qing Lou (THU)*

14:00 - 14:30	Invited Talk: Sanjit Mitra (IUCAA) - The beginning and future of Gravitational Wave Astronomy
14:30 - 15:00	Invited Talk: Wen Zhao (USTC) - Gravitational wave and testing of gravity
15:00 - 15:30	Rainer Sperzum (NAOC) - Black Holes in Star Clusters and Galactic Nuclei, Post-Newtonian Dynamics and Gravitational Waves
15:30 - 15:50	Coffee break

Parallel Session: *Cosmology V*

Chair: *Wei-Ming Dai (UKZN)*

15:50 - 16:10	Siphiwe Thwala (Wits) - The nature of the extended radiogalaxy PGC2285791
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16:10 - 16:30	Liantsoa Finaritra Randrianjanahary (UWC) - Cosmology with Baryonic acoustic oscillations : Effect of non-linear contamination
16:30 - 16:50	Brandon Engelbrecht (UWC) - Extracting the BAO using HI Intensity Mapping with MeerKAT
16:50 - 17:10	Nandrianina Randriamiarinarivo (UWC) - Simulating Radio continuum maps to test the isotropy of the universe

Parallel Session: Gravity V (*This session is dedicated to SA gravity society meeting 2018 but all participants are welcome*)

Chair: Qing Yang (BNU)

15:50 - 16:20	Nathan Moynihan (UCT) - Gravity and Scattering Amplitudes
16:20 - 16:40	Hassan Abdalla (NWU) - LIV Signatures in EBL absorption and Compton scattering
16:40 - 17:00	Sayuri Singh (UKZN) - A new class of LRS spacetimes: General solutions and properties

Evening Session: *Banquet and closing ceremony at Royal Natal Yacht Club*

Bus leaves the hotel at 18:00.

Saturday, 27 October 2018—Sunday, 28 October 2018

WHOLE DAY

Optional Excursion to ANEW hotel Hluhluwe and Hluhluwe National Park

The Bus leaves the Protea Hotel at 9:00 Saturday 27th October, and comes back to the Durban King Shaka International Airport at 13:00 Sunday 28th October.

AFFILIATION

AIMS	African Institute for Mathematical Sciences
BNU	Beijing Normal University, China
CIRI	Central India Research Institute, Nagpur, India
DST	Department of Science and Technology, South Africa
IITM	Indian Institute of Technology Madras
INPE	Instituto Nacional de Pesquisas Espaciais, São José dos Campos, Brazil
ITP, CAS	Institute of Theoretical Physics, Chinese Academy of Sciences
IUCAA	Inter-University Centre for Astronomy and Astrophysics, India
NAOC	National Astronomical Observatory China
NWU	North-West University, South Africa
PMO, CAS	Purple Mountain Observatory, Chinese Academy of Science
SAAO	South African Astronomical Observatory
SARAO	South African Radio Astronomy Observatory
SJTU	Shanghai Jiaotong University, China
THU	Tsinghua University, China
UCT	University of Cape Town
UNIZULU	University of Zululand
USP	University of São Paulo, Brazil
USTC	University of Science and Technology of China
USU	Ulyanovsk State Pedagogical University named after I.N. Ulyanov, Russia
UWC	University of the Western Cape
UKZN	University of KwaZulu-Natal, South Africa
Wits	University of Witwatersrand, South Africa
YZU	Yangzhou University, China