

ACGC

Astrophysics, Cosmology and Gravity Centre

Accredited mid 2009 by UCT as a Research Centre

Conformed of

- (a) The Astronomy Department**
- (b) The Cosmology & Gravity Group (MAM)**
- (c) Host of NASSP**

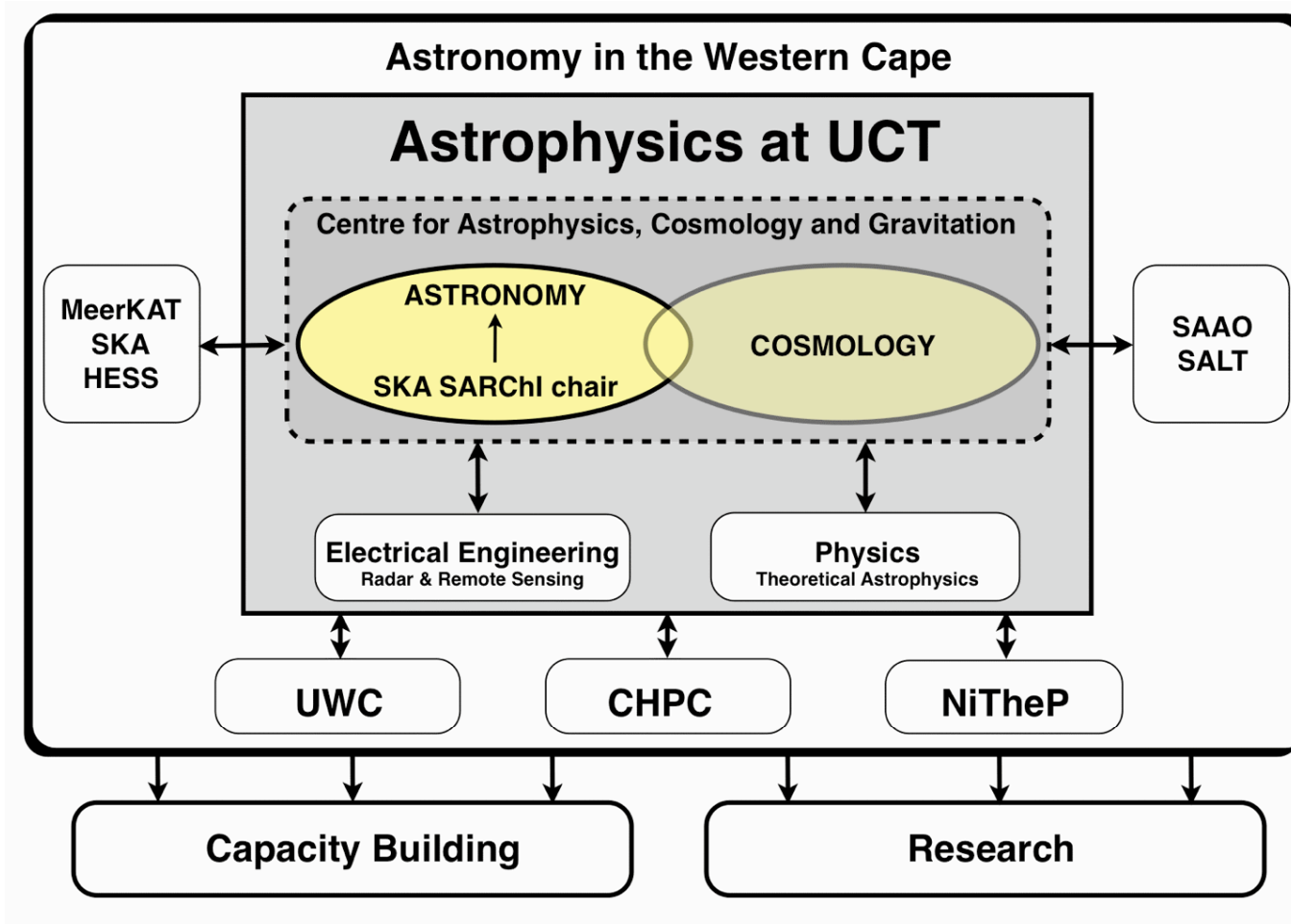
*National Astrophysics and Space Science Postgraduate
Honours & Masters Program*

*Form a major research hub in astrophysics, cosmology and gravitation
in Southern Africa and African Continent
with particular emphasis on projects involving the new facilities SALT and MeerKAT
that will require the expertise from both observers and theorists*

**An invite for affiliated members of the astronomical community in the Western Cape will
follow (other departments at UCT, SAAO, KAT office, UWC)**

potentially also to other SA institutions

Astrophysics in the Western Cape



UWC: *University of the Western Cape*

NiTheP: *National Institute for Theoretical Physics*

CHPC: *Centre for High Performance Computing*

Core Members of the ACGC (UCT)

(18 acad. staff; 11 (+4) postdocs; 36 postgrad students)

Academic staff (10):

- **Renée C. Kraan-Korteweg**
- Erwin de Blok (SARChI Chair)
- Patrick A. Woudt
- **Thebe Medupe** (joint SAAO/UCT)
- Kurt van der Heyden
- Sarah L. Blyth (SA SKA funded)
- Patricia Whitelock (joint SAAO/UCT)

- Brian Warner (Emeritus Dist. Prof)
- Michael Feast (Honorary Professor)
- Ian Stewart (Hon. Research Ass.)

Affiliated Honorary Professors:

- Phil A Charles (Director SAAO)

Postdoctoral fellows (3 + 2new in 2010):

Benne Holwerda, Se-Heon Oh, Matthew Schurch

Postgraduate students:

22 (8 PhD, 14 MSc) students (2010)

Academic staff (8):

- **Peter Dunsby**
- Chris Clarkson
- Charles Hellaby
- Jeff Murugan
- Bob Osano
- Deon Solomons
- Amanda Weltman

- George Ellis (Emeritus Dist. Prof)

Postdoctoral Fellows (8 + 2new in 2010)

Krzysztof Bolejko, Naureen Goheer, Rituparno Goswami, Alex Hamilton, Julien Larena, Marco Regis, Petja Salmi, Mat Smith

Postgraduate students:

14 (7 PhD + 7 MSc) students in 2010

ACGC Retreat in Montfleur (24-26 March 2010)

Goal: *enable clear communication between researchers within ACGC, explore areas of common interest and assess the changing astronomical landscape in South Africa and the position of ACGC within this future landscape*



PROGRAMME

Wednesday 24 March 2010

10 – 17h30	Arrive and tea/coffee
10 – 18h00	General Introduction [Dunsby]
10 – 15h10	Welcome [Lyn Holness]
10 – 15h30	Introducing the workshop: Aims and Overview [Woudt]
10 – 16h30	Five minute presentations on each person's research expertise (for the non-specialist) [all participants / 3 slides per person]
10 – 16h45	Coffee/Tea break
15 – 17h30	Five minute presentations on each person's research expertise (for the non-specialist) – continued
10 – 18h00	Overview of SA Astronomy/Cosmology landscape [Whitelock TBC / Dunsby]
10 for 19h30	Dinner

Thursday 25 March 2010

10 – 08h45	Breakfast
15 – 12h30	Observation and theory combined [Maartens]
15 – 09h00	Introduction to the day's agenda [Maartens]
10 – 09h30	Historic overview Astronomy/Cosmology at UCT [Ellis TBC]
10 – 10h00	Examples of successful Astronomy/Cosmology groups around the world [Maartens]
10 – 10h30	Discussion: Where is South Africa's niche using current facilities? [Astronomy: SALT/MeerKAT] [Cosmology: LHC]
10 – 10h45	Coffee/Tea Break
15 – 11h15	Discussion: Cosmology: What can Astronomy do for you?
15 – 11h45	Discussion: Astronomy: What can Cosmology do for you?
15 – 12h30	Discussion: Current strengths and weaknesses
10 – 14h00	Lunch

Building for the future [Woudt]

10 – 15h00	Exploiting SA's niche in current facilities toward future frontier science [ELT/SKA/JWST/ALMA]
10 – 16h00	Identifying regions of growth in the ACGC
10 – 16h30	Coffee/Tea Break
10 – 17h30	Discussion: Introduction to Friday's workgroups
10	Guided walk up the mountain for those interested
10 for 19h30	Dinner

Friday 26 March 2010

10 – 08h45	Breakfast
15 – 12h30	Break-out sessions on broad themes <u>CHAIR(S)</u> : TBD (2-3 small groups)
15 – 10h15	Sub-groups (identified on Wednesday afternoon): identify possible joint Astronomy/Cosmology research projects
15 – 10h30	Coffee/Tea break
10 – 11h30	Resume sub-group discussions
10 – 12h30	Report back all participants
10 – 13h30	Lunch
10 – 15h00	Practical issues with ACGC [Kraan-Korteweg/Dunsby]
10 – 15h00	Establishing a working model for joining two research units.
10 – 15h30	Conclusion [Kraan-Korteweg/Dunsby]
10 – 15h30	Workshop summary [Feast TBC]
10	Tea and departure

Further Growth:

- **Allocation of SKA Research Chair (hosted at Astronomy Department/ACGC):**

Extragalactic Multi-wavelength Astronomy

with emphasis on galaxy formation, evolution and cosmology through radio observations with MeerKAT and synergies with ground and/or space-based observations in the optical, infra-red and mm-domain

For 3 cycles of 5 years each, i.e. 15 years total.

3 million ZAR/year (~430'000 AUD) for salary, equipment, travel money, competitive postgraduate & postdoc bursaries, some admin support

- **Advertisement of joint UCT/SAAO staff position (Lecturer/Sen Lecturer)**

strengthen collaboration between UCT and SAAO (in accordance with UCT/SAAO MoU)

- **First official ACGC PDRA to join Centre shortly (Dr. Garry Angus)**

more PDRA possibilities (SKA, UCT, Leon foundation, NRF scarce skills)

→ personal application:

CONTACT POTENTIAL COLLABORATOR/SUPERVISOR

to jointly prepare application

Support not only from Science Faculty but UCT Research Office and UCT in general

▪ VC Strategic Funding (250'000 Rand/year)

- Centre administrator (50%);
- PDRA top-ups;
- support for ACGC visitors

▪ First ACGC space allocation

- 175 m² on top floor of Botany inbetween AST and COS building;
- *with potentially a further 600-700 m² to be freed in next two years*
- 1'200 000 Rand for renovation from Science Faculty

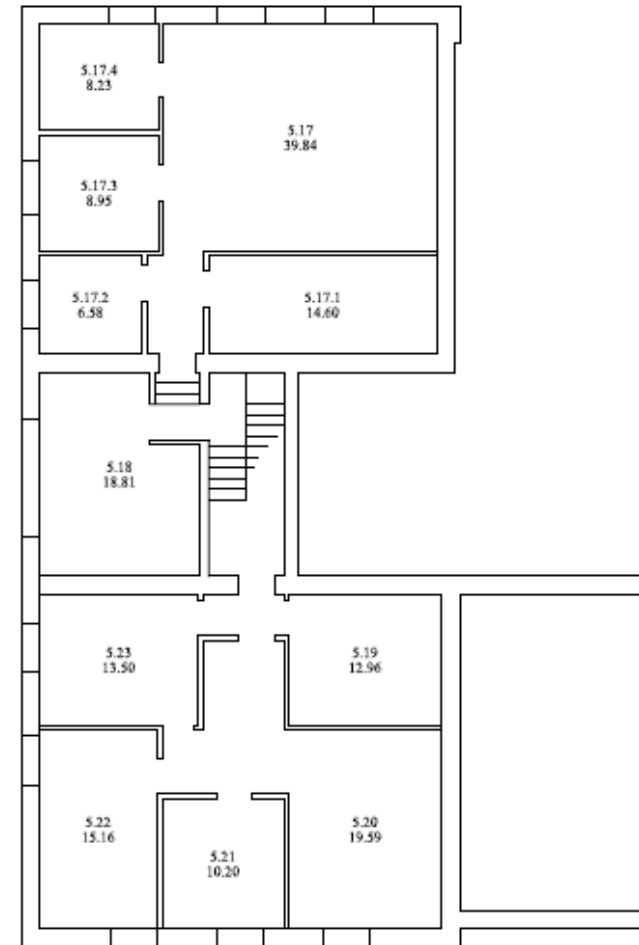
Goals:

- new dedicated space for NASSP:

NASSP computer lab; NASSP admin help, visiting lecturers from partner institutions; allowing for potential growth of NASSP

- ACGC common space:

common seminar/meeting room; coffee and social room; space for visitors and/or postdoc overflow



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Website (in the making):
With new logo

<http://www.acgc.uct.ac.za>

- Weekly Journal club
- Weekly ACGC seminars
- Social events



The screenshot shows a website layout with a teal sidebar on the left and a white main content area on the right. The sidebar contains a vertical list of navigation links: Home, Research, People, News / Adverts, Meetings / Events, Contact, UCT Astronomy Department, UCT Cosmology And Gravity Group, and Login. The main content area features a header image with a star, a waveform, and a colorful map, with the text 'ACGC ASTROPHYSICS COSMOLOGY AND GRAVITATION CENTRE' overlaid. Below the header is the title 'Astrophysics, Cosmology and Gravitation Centre' in orange. The main text includes the acronym 'ACGC', a description of the center, a 'VISION' section, a 'GOALS' section with three bullet points, and a note that the site is currently under construction.

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ACGC
ASTROPHYSICS COSMOLOGY AND GRAVITATION CENTRE

Astrophysics, Cosmology and Gravitation Centre

ACGC
The UCT Astrophysics, Cosmology and Gravitation Centre (ACGC) is a research centre incorporating members from the UCT Department of Astronomy and the Cosmology and Gravity Group from the UCT Department of Mathematics and Applied Mathematics.

VISION:
The ACGC aims to create a research environment at UCT in which South African-led cutting-edge science projects will be discussed, developed and taken to fruition. Maximising the opportunities for interaction between theorists and multi-wavelength observers is essential for stimulating new approaches to research.

GOALS:

- To form a world-wide recognized research hub in South(ern) Africa, a Centre with critical mass that will pursue and promote rigorous research, while making optimal use of the new forefront research facilities in South Africa.
- To become an attractive location for postgraduate students and postdoctoral fellows, as well as international visitors.
- To create an environment where both observational astronomers and theoretical cosmologists can interact and work on joint research projects, thus facilitating the production of a new generation of SA researchers with a strong foundation in both cosmology and observational astronomy

This Site is Currently under Construction.

Research areas of the ACGC

- galaxy evolution and transformation
- extragalactic large-scale structures, distance scale and cosmic flow fields
- neutral hydrogen (HI) and dark matter content of nearby galaxies
- Galactic structure
- high-speed stellar photometry and spectroscopy of variable stars (CV's)
- stellar pulsations
- history of astronomy
- observational cosmology
- dark energy & Chamaleon DE
- modified gravity
- inhomogeneous cosmology
- string theory and cosmology
- early universe physics
- modelling inhomogeneity
- gravitational wave physics