

## MWL/MM inputs timeline (Ulisses' talk)

### Action Items

- CTAC MWL operations requirements  
(CTA-Oz should be ready to respond) e.g. AGN flares
- Identify new students and projects to engage in process
- White papers (CTA-MWL, CTA-SKA..)

## CTA Optical Support 1m Telescope (Lindfor's talk)

- Finalisation of proposal (led by S. Markoff) for CTAO

## CTAC Publications (Lindfor's talk)

- Many publications on various topics in preparation.

# Topics for Discussion CTA-Oz (online Nov. 2020)



cherenkov  
telescope  
array

## LIEF #3 Application 2020 for 2021-2025 funding.

Overlap 1yr with LIEF #2 **Still waiting for result! - Adelaide Nol 15 Nov!**

LIEF #1 2015 for CTA pre-production ~\$450k

LIEF #2 2017-2021 for CTA construction & support ~\$450k/yr

LIEF #3 2021-2025 Construction, MWL support ~ \$600k/yr

**E5 Summary of Direct Project Cost**

Year	Total contribution sought from ARC \$	Total cash for direct costs: Admin. Organisation \$	Total cash for direct costs: Other eligible Organisations \$	Total cash for direct costs: All Partner Organisations \$	Total cash for direct costs: Other Organisations \$	Total cash for direct costs: Sum of all items sought \$	Total contribution sought from ARC as a percentage of total cash cost of all items %
Year 1	400,000	50,000	160,000	0	0	610,000	66%
Year 2	600,000	50,000	160,000	0	0	810,000	74%
Year 3	600,000	50,000	160,000	0	0	810,000	74%
Year 4	200,000	50,000	160,000	0	0	410,000	49%
Year 5	200,000	50,000	160,000	0	0	410,000	49%
Total	2,000,000	250,000	800,000	0	0	3,050,000	66%

Adelaide – Rowell, Dawson, Voisin – \$50k/y;

WSU – Tothill – \$30k/yr

UNSW – Seitzzahl – \$30k/yr ;

Sydney - Boehm, Green – \$30k/yr

Monash – Balazs – \$30k/yr;

ANU – Krumholz, Bicknell, Crocker – \$30k/yr

Curtin – Hurley-Walker – \$10k/yr

Nagoya – Tajima

MPIK – Hinton

Armagh – Burton

# Topics for Discussion CTA-Oz (online Nov. 2020)

## Astroparticle Physics in Australia

Email list for discussions: [ozastroparticle.physics@list.adelaide.edu.au](mailto:ozastroparticle.physics@list.adelaide.edu.au)

1. New ASA/AIP Group for Astroparticle Physics (GAP) from early 2021

New opportunity to expand linkages between astrophysics, astronomy, particle physics.

2. CoE in Astroparticle Physics: *Centre for Cosmic Origins and Extremes*

People from Adelaide, Sydney, UNSW, ANU, WSU, UQ, Monash, Curtin, Melb...

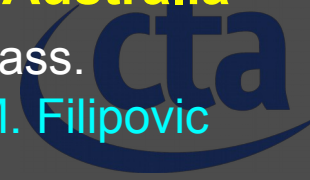
Theme1: Origin of Extreme Particles

Theme2: Origin of Mass & Matter

Theme3: Origin of Expansion & Structure

Support for CTA and its science within Australia, plus R&D towards TeV telescopes in Australia.

# CTA Linkages with Radio, Optical programmes in Australia



cherenkov  
telescope  
array

- Optical monitoring/polarimetry from Australia 1m/2m class.
  - **Bespoke polarimeter for AGN** D. Cotton, J. Bailey, M. Filipovic
  - **ZADKO 1m telescope Bruce Genre (UWA)**
- ISM inputs into Galactic plane analysis
  - Prepare Mopra CO data – galactocentric (G. Rowell, M. Burton)
  - Link with GASKAP (G. Rowell, J. Dawson, K. Jameson, N. McClure-G)
  - GALPROP time-dep (P. Marinos, T. Porter, G. Rowell, F. Voisin)
- FRBs + transients
  - **VOEvent UTMOST/HESS** T+10min autoslew, T+10min-5hr autoalert (G. Rowell, F. Schussler, H. Ashkar, C. Flynn, V. Gupta, )
  - **DWF links with HESS** (G. Rowell, J. Cooke)
  - **ASKAP/HESS shadowing** (G.Rowell, S. Einecke, R. Norris, S. Bandhari,...)
  - **HESS/ATCA TeV GRBs** (G. Rowell, G. Anderson..+HESS)
  - **Radio VLBI** C. Phillips (CSIRO)
- Radio surveys MWA/HESS (M. Filipovic, G. Rowell, N. Maxted, N. Hurley-Walker)  
ASKAP/HESS (M. Filipovic, G. Rowell, S.Einecke, R.Norris)
- MoUs/agreements for CTA (from 2020/21)? → Need contact points to telescopes
  - >2m optical AAT, 2.3m ANU, GOTO (North Hemis – K. Ackley)

## CTA-Oz Projects linked to KSPs etc..



Ideas for projects to build activities in CTA KSPs etc..

- SST analysis including machine learning; Improving  $>10$  TeV performance, PeVatrons DP20 (S. Einecke, M. White, G. Rowell, M. Filipovic, new postdoc/PhD st)
- CTA performance with gammapy and CR diffusion models (S. Einecke, G. Rowell.)
- CTA telescopes in Australia (S. Einecke, G. Rowell..)
- Mopra CO + GASKAP ISM preparation for Galactic Plane KSP  
(G. Rowell, N. Tothill, M. Filipovic,...)
- Radio continuum surveys (ASKAP EMU, MWA GLEAM-X)  
(M. Filipovic, R. Norris, G. Rowell..)
- Machine learning classification of radio to gamma-ray sources (S. Einecke)
- Machine learning classification of ISM features (S. Einecke, G. Rowell)
- Optical studies of SNR, PWN (I. Seintenzahl)
- Transient linkages (G. Rowell, M Filipovic, K. Ackley, D. Galloway,....)
- Development of polarimeters for AGN (M. Filipovic..)
- CTA studies of UHE cosmic rays and gamma rays;  
Extreme standard model physics (J. Bellido)
- Dark matter + beyond standard model (new scales, monopoles)  
(M. White, C.Balazs, C.Boehm, A.Kobahidze..)
- Galactic Centre (R. Crocker..)
- Cosmic ray chemistry/ionisation of the ISM; ATCA HCO<sup>+</sup> mapping (W28)  
(N. Tothill, G. Rowell, R. Crocker, M. Krumholz..)
- Population studies, CR transport - star forming galaxies (R. Crocker, M. Krumholz)

## CTA Consortium Membership Categories

Based on the new CTAC MoU (in force by late 2020)

### Category I guidelines:

- to contribute in an identified fashion to the CTAC duties
- to invest a significant fraction of their time in CTA, and
- to have well-defined contributions, e.g. for hardware, software analysis, infrastructure or scientific/technical management.

Can opt in on ALL CTAC publications

S. Einecke, G. Rowell, M. Filipovic, C. Balazs

### Category II:

Individuals who do not qualify as Category I Members may be admitted as Category II Members, if they bring an identifiable benefit to the CTAC.

Category II Members can be invited by the CTAC to participate in and potentially lead Consortium publications in cases where direct and significant contributions are made.

G. Rowell to propose Cat I members to CTAC Committee (final authority).