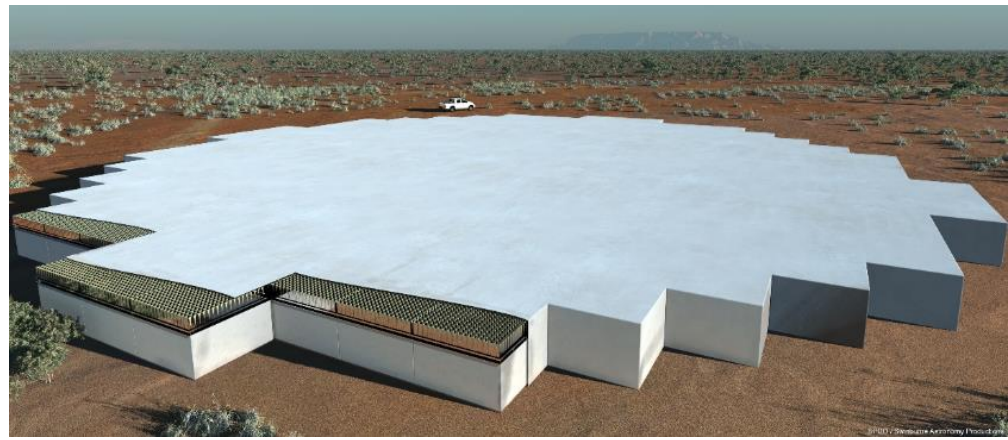


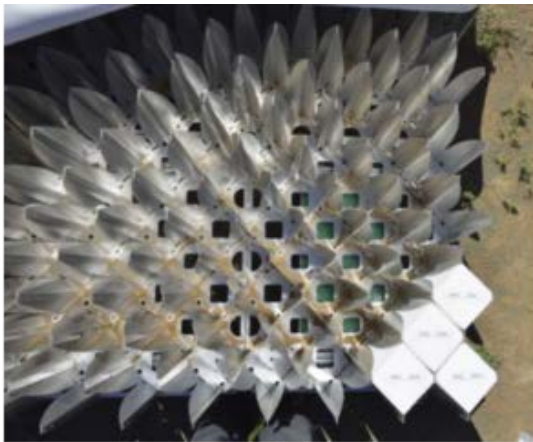
Future MFAA Demonstrators

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Overview of future prototypes

- Prototypes at various partners
- Operational tiles on the site (K4?!)
- Operational tiles for education
- Science demonstrator



Science demonstrator

- Next logical and essential step for MFAA
- Located on the South African SKA Site
- Huge opportunities:
 - Perform unique science
 - Feeding MeerKAT with triggers
 - Demonstration and verification of MFAA technology
 - Educate people for the next generation radio-telescope
 - Involvement of industry



Context

- Input to:
 - MFAA PDR
 - Input to SKA2 technology decision
- What do we need to demonstrate?
 - Science!
 - Competiveness, maturity
 - Steady progress towards low cost, low power
 - Operational costs
 - Performance

Funding

- Best chances of funding with a focused science goal
- International project, funded by several sources (incl SKAO)
- 1000 m² ??

Milestones, Timeline

- 2016 Demonstrator definition
- 2017 Technology downselect
- 2017 Demonstrator PDR
- 2018 Demonstrator CDR
- 2019-2020 Construction
- 2020 Demonstrator start of operations

Possible science topics for demonstrator

•Transients

- Wide field sky monitor (fast transients, e.g. FRBs, GW EM counterparts).
- Synergies with MeerKAT/SKA1-MID (e.g. rapid triggering for higher-resolution follow-up).
- Slow transients; can do an NVSS-like survey every few days.

•Pulsars

- Semi-continuous monitoring (glitches/starquakes).

•HI

- Intensity mapping (BAO).
- Local HI, e.g. wide field survey to investigate faint end of HI mass function (at modest resolution but sufficient sensitivity?).
- Associated/intervening HI absorption.

•Cosmic magnetism

- Wide bandwidth → great for RM synthesis.
- Diffuse polarization (e.g. Galactic) – sufficient sensitivity?

• Other topics

- VLBI; connect demonstrator to AVN.
- Solar physics? 450-1000 MHz relatively poorly explored.
- Radio recombination line surveys.

We would greatly appreciate your ideas!!