



19 January 2016

## Science Working Groups (SWGs)

### Terms of Reference

#### Overview

The Science Working Groups (SWGs) are a set of scientific advisory groups that provide input to the Square Kilometre Array Organisation (SKAO) on issues relating to the design, commissioning, and future operations of the SKA that are likely to affect the Observatory's scientific capability, productivity and user relations. The terms of reference will evolve as the Observatory begins scientific operations.

#### Relation of Science Working Groups to Key Science Projects

SWG membership does not imply participation in an SKA "Key Science Project" or "Survey Team", nor indicate preferred access to the upcoming SKA Observatory in any way. However, it is foreseen that the SWGs will provide a forum for discussion of Key Science Project concepts and facilitate potential KSP collaborations.

#### Charge

It is expected that the SWGs will provide advice and guidance, based on their experience with existing telescopes and from the perspective of potential users of the SKA, on the design and development of the SKA. Specific activities include:

- Providing advice on the science impact of design changes to the SKA;
- Providing advice on the expected commissioning and operation of the telescope;
- Providing a conduit for information on nascent Key Science Projects;
- Drawing attention to emerging research topics that may be addressed by the SKA;
- Providing Scientific Organising Committee membership and topical speakers for SKA science meetings;
- When possible, assisting the SKA Science Team in the dissemination and promotion of science enabled by the SKA to the broader community through presentations at major astronomy meetings, universities and research institutions.

Advice and guidance on other matters may be sought as appropriate.

#### Structure and Membership

Current SWGs represent a wide range of scientific areas:

- Extragalactic Spectral Line (non-HI)
- Our Galaxy
- Solar, Heliospheric & Ionospheric Physics



- Epoch of Reionization
- Cosmology
- Extragalactic Continuum (galaxies/AGN, galaxy clusters)
- Cradle of Life
- HI galaxy science
- Magnetism
- Pulsars
- Transients

In addition there is a technique focused working group:

- VLBI

and a topical Focus Group representing:

- High Energy Cosmic Particles

Each Working Group has an allocated Project Scientist, an employee of the SKA Organisation, who acts as a liaison with the Group.

The set of Working (and Focus) Groups may evolve, based on emerging scientific results or as needed by the SKA Organisation. Each Group shall have a Chair or Co-Chairs. Each Group member can make (self-)nominations for these (co-)chair roles. Appointments will be made by the SKA Science Director who is responsible for ensuring that appropriate attention is given to representational balance of the SKA-member nations across the entire set of SWGs. Chairs are appointed for a single two-year term. Renewals will be staggered to ensure continuity.

Membership in SWGs is open to any actively publishing researcher with a scientific interest in the SKA and a willingness to contribute an appropriate level of effort toward SKA science needs as described below. SWG membership is open to researchers affiliated with both SKA-member and non-member nations. Researchers can nominate themselves for membership by contacting the relevant SWG Chair or office project scientist. Each SWG consists of two tiers of membership: Core members and Associate members.

Core members are encouraged to contribute to the activities listed under “Charge” and to the day-to-day team activities such as regular participation in telecons and face-to-face meetings, undertaking scientific assessments, formulation of scientific use-cases, and other activities as requested by the Working Group Chair and/or Science Director.

Associate members have a scientific interest in the team activities and may provide input and feedback to the Chairs. Associate members will have access to relevant documents generated by both the SKA Organisation and the Science Working Groups. It is the responsibility of the SWG Chairs to ensure that Associate members are kept informed of SWG activities. Updates of ongoing SKA-related activities should be communicated either through email or telecon with a frequency of no less than once every *four* months.



Appointments to the SWGs at the Core level are made at the discretion of the Chairs, with arbitration in the event of appeals handled by the SKA Science Director. To keep the team sizes manageable, SWG Chairs in consultation with the SKA Science Director will limit the Core membership size. Chairs should endeavour to achieve broad scientific representation within their science area, while attempting to provide balanced national representation of the SKA-member community. SWG Core members meet on a regular basis, at a frequency appropriate to each SWG, to review progress. These meetings should include invitation to the SKA Project Scientist that is responsible for coordination of that Group. Core members should provide representation of both their own expertise as well as their communities and can nominate substitutes as needed to be considered by the Chair to participate in meetings. The term of Core science team membership is two years, with the possibility of renewal for additional two-year terms by application to the Chair.

Together with the SKA Science Director and Project Scientists, the Chairs shall form a “coordination group”; the coordination group may have additional members (e.g., sub-system scientists) as appropriate. It shall meet as appropriate to ensure that activities between SWGs are coordinated, to review progress amongst SWGs, and discuss issues of broader scientific interest to the SKA.