

RadioNet support for scientific events

Application form for organisers

EVENT INFORMATION	
TITLE	SKA-VLBI Key Science Projects and Operations Workshop
PLACE	SKA HQ, Jodrell Bank, UK
ORGANISER'S INSTITUTE NAME	Joint Institute for VLBI ERIC (JIVE), Square Kilometre Array Organization (SKAO); Organizers: Zsolt Paragi, Antonio Chrysostomou
DATE	14-17 October 2019
NO. OF PARTICIPANTS	60-120
TOTAL EVENT COST	~25.000 EUR (including costs of invited people)
RADIONET SUPPORT	6.000 EUR
OTHER SOURCES OF FUNDING	JUMPING JIVE WP10 (VLBI with the SKA), JUMPING JIVE WP7 (EVN Future), SKAO, JIVE
REQUEST (max. 2 pages)	
Short abstract of the event	<p><i>The Square Kilometre Array (SKA) will deploy its first phase telescopes in the mid-2020s. SKA1-LOW (50-350 MHz) and SKA1-MID (0.35-15.3[24.0] GHz) will have maximum baseline lengths of about 65 km and 150 km, respectively. Some of the highest priority science objectives defined by the SKA Organisation - together with the science working groups - however require an angular resolution that can only be reached by current very long baseline interferometry (VLBI) networks, or the full SKA with baselines extending to thousands of km. To exploit the full potentials of the first phase SKA components for very high resolution applications, it has been proposed to coherently phase-up the core of SKA1-LOW and SKA1-MID, and make these powerful telescopes available for global VLBI observations.</i></p> <p><i>In the past 50+ years the VLBI technique has provided the highest angular resolution imaging application in observing astronomy. It provided means to measure apparent superluminal motion in highly relativistic jets from active galactic nuclei (AGN) some 40 years ago, while today we can directly observe the impact of these jets to the neutral and molecular interstellar medium as they drive powerful large-scale outflows - an important form of AGN feedback that shapes galaxies. The superior relative astrometric capabilities allowed us to measure accurate distances and proper motions well before the Gaia era, which helped us to better understand stellar birth and stellar evolution, as well as the structure of the Milky Way. Absolute astrometry with VLBI allows us to measure Earth Orientation Parameters and UT1, and may be used for cosmological studies. In the field of transient science, VLBI has provided the first clue that Nova ejecta can be highly asymmetric, it made possible to resolve (mildly)-relativistic ejecta from Tidal Disruption Events, and provided the tightest constraints on the position of the first ever localised fast radio burst FRB121102.</i></p>

	<p><i>The aim of the workshop is to introduce the VLBI capabilities and observing modes of the SKA to the community, and present the latest results in the SKA high priority science areas where VLBI will make an impact. We will discuss ideas and possible strategies for major SKA-VLBI Key Science observing programmes, and the impact of global VLBI observations for astronomical research in the future in general. In addition, we will seek input regarding the SKA-VLBI requirements for the future SKA Regional Centres.</i></p> <p><i>Scientific Organising Committee: Laura Spitler (MPIfR-Bonn, Germany), Kazi Rygl (INAF-IRA, Italy), Michael Rupen (HAA-NRC, Canada), Maria Rioja (ICRAR-UWA/CSIRO, Australia OAN, Spain), Chris Phillips (CSIRO, Australia), Mar Mezcuca (ICE/CSIC, Spain), Preeti Kharb (NCRA-TIFR, India), Hiroshi Imai (U. Kagoshima, Japan), Roger Deane (U. Pretoria, South Africa), John Conway (OSO-Chalmers U., Sweden), Paco Colomer (JIVE, Netherlands), Anna Bonaldi (SKAO, United Kingdom), Tao An (ShAO, China), Antonio Chrysostomou (SKAO, United Kingdom (co-Chair)), Zsolt Paragi (JIVE, Netherlands (co-Chair))</i></p> <p><i>Local Organising Committee: Antonio Chrysostomou (SKAO (Chair)), Cristina Garcia Miro (SKAO), Joe Diamond (SKAO), Sarah Lamb (SKAO), Robert Beswick (JBCA-U. Manchester), Evan Keane (SKAO)</i></p>
Relevance for RadioNet	<p><i>e-MERLIN and the EVN are pathfinders to the phase-I SKA components. The e-EVN itself may also serve as an operational role model for SKA1-MID. The future of these RadioNet facilities largely depends on the impact the SKA itself will make on the field of radio astronomy. It is the best interest of our community to keep the very high angular resolution science cases up to date and think about the future of these facilities. The SKA is not a threat, but an opportunity for VLBI science. Together we will make SKA-VLBI happen.</i></p>
Impact on RadioNet	<p><i>The JUMPING JIVE WP10 and the SKA VLBI Working Group have provided inputs to the process of deriving the technical requirements for VLBI operations with SKA1-MID and SKA1-LOW. The Critical Design Reviews of the various elements are ongoing now. The next step is to prepare the RadioNet community to join the effort of establishing the science goals of SKA-VLBI, that may develop into Key Science Projects as well. In this regard, we strongly support the participation of young people (and especially women) who will be the main users of SKA-VLBI (including e-MERLIN and EVN telescopes). The intention is to invite young people from countries where radio astronomy is not so well developed so they could contribute to the SKA-VLBI effort.</i></p>
Use of the RadioNet contribution	<p><i>We will use the RadioNet contribution to support travel/accommodation expenses of 2-3 invited speakers, who would talk about science with RadioNet facilities and their future.</i></p>
Ethics	<p><i>We will follow the Code of Conduct of JIVE and the SKAO.</i></p>
<p>Privacy Policy: With signing this template and applying for RadioNet funding, I accept the <u>Privacy Policy of RadioNet</u>, which is based on the EU General Data Protection Regulation (GDPR).</p>	
Place & Date:	Signature of the applicant:
<u>Dwingeloo, 31 January 2019</u>	