

The Square Kilometre Array Background and Potential

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ASTRON

Netherlands Institute for Radio Astronomy

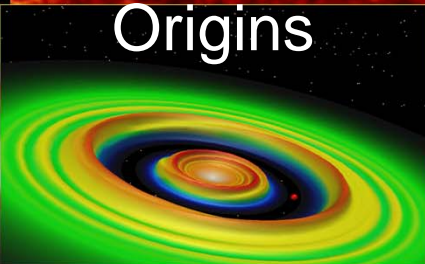


ASTRON is een onderdeel van de Nederlandse organisatie voor Wetenschappelijk Onderzoek, NWO

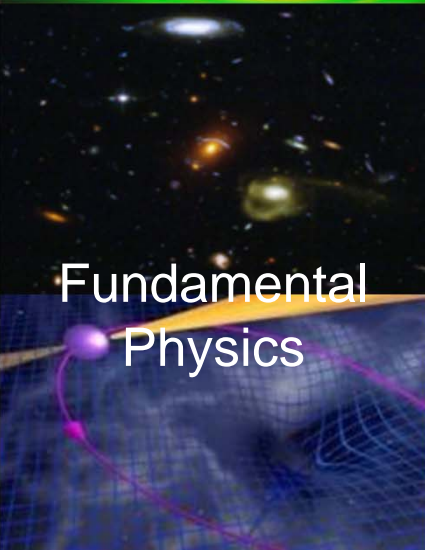
By studying the Big Questions of Physics...

We face Major Challenges of Technology!

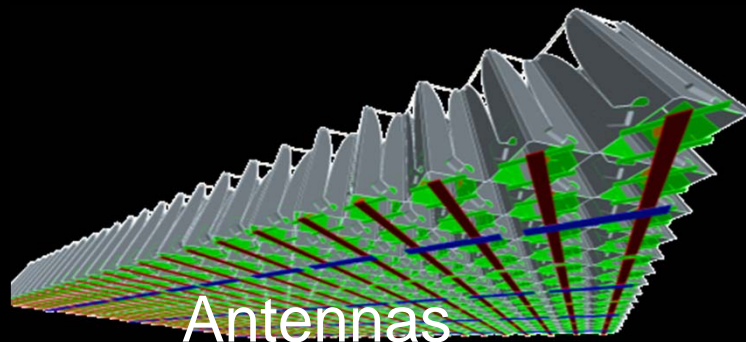
Origins



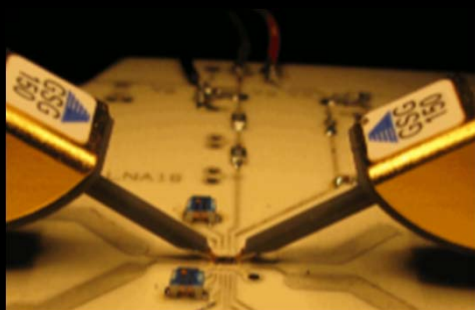
Fundamental
Physics



Discovery



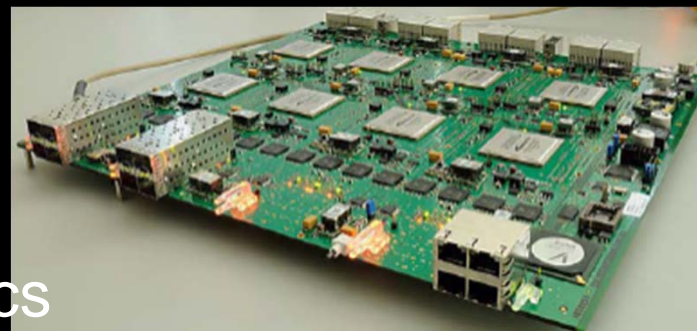
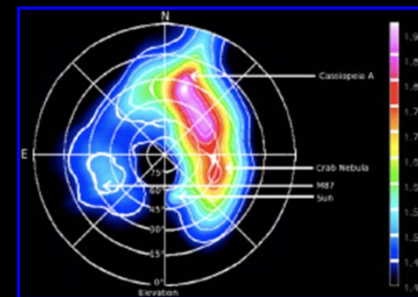
Antennas



Chips

Electronics

ICT



- Partnerships in large development projects (Big Science PPS)
 - Strengthen competitive power of companies in R&D phase, allowing them to successfully tender in production phase.
 - Collaborate with techno-starters in various phases, giving them a kick-start and network/reference.
 - Formation of clusters and themes in major innovation programs

- Knowledgepartner in development
 - Short, intense trajectories (innovatievouchers, consultancy, ...)

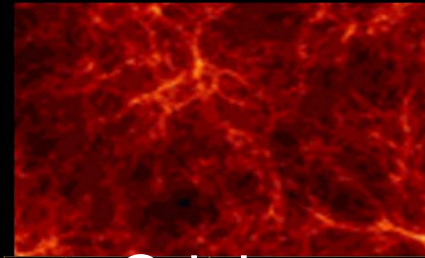
- Facility sharing
 - Measurement rooms, lab environment, ...
 - WSRT for Galileo monitoring, LOFAR for seismic monitoring

- Direct spin-offs
 - Via AstroTec Holding B.V. - Currently four subsidiaries
 - Investment through knowledge and expertise

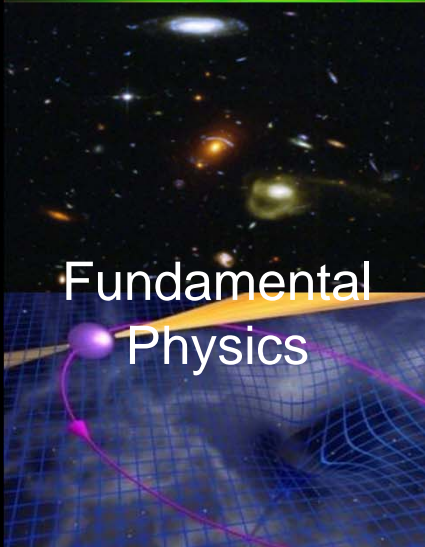
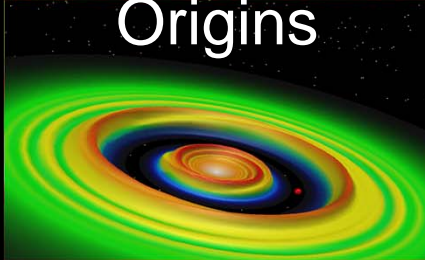
The Square Kilometre Array



SKA - The Science Case



Origins

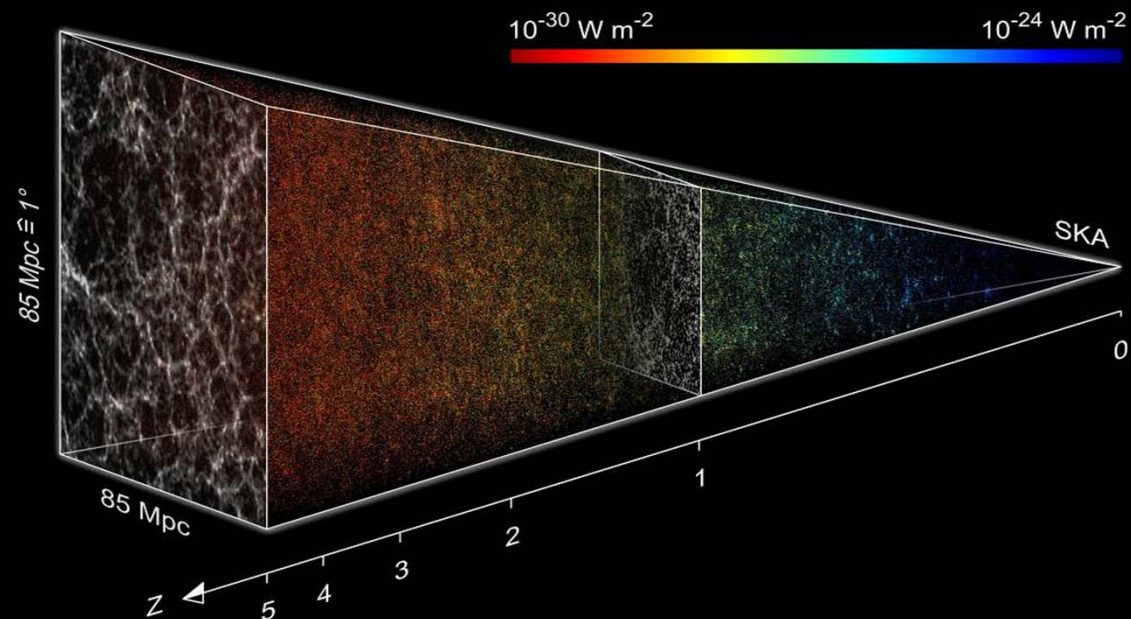


Fundamental
Physics

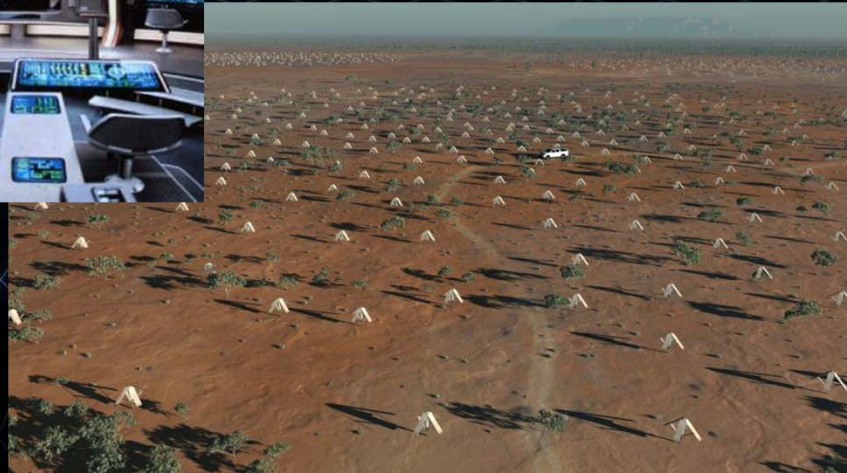


Discovery

- The history of HI : from the “dark ages” to the present era
- Finding and timing dubbel-pulsars and spin-stable millisecond pulsars to test the laws of gravity (gravitational waves).
- Finding and imaging radio continuum emission of galaxies and active galactic nuclei.

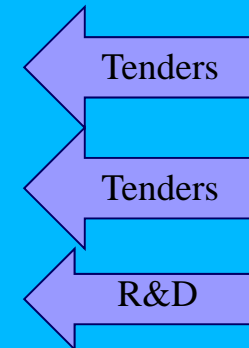


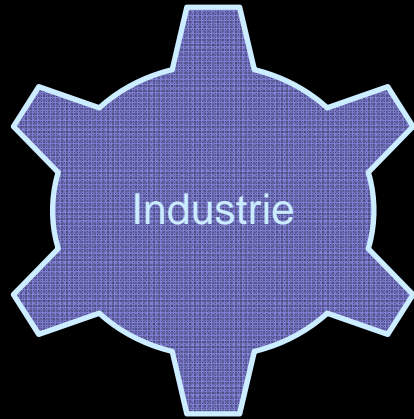
SKA - The Technology



SKA - The Timeline

- 2024 – Full science operations with Phase 2
- 2020 – Full science operations with Phase 1
- 2018-23 – Phase 2 construction
- 2016-19 – Phase 1 construction
- 2013-15 – Detailed design and pre-construction phase
- 2012 – Site selection
- 2011 – Establish SKA organisation as a legal entity
- 2008-12 – Telescope system design and cost
- 2006 – Short listing of suitable sites
- 1991 – Concept





Connecting Industry and Science

"Big Science PPS" / Advanced Instrumentation

Duurzame economische ontwikkeling in I door innovatieve technologie voor de Squa



ASTRON *provi*



Project Dome
Unique opportunity to create
Centre of Excellence in the Netherlands



MAJOR Electronics b.v. **NEWAYS** Leeuwarden **ISI TERRA** **s[&t]** dependable solutions

provincie Drenthe **IBM.** **ASTRON**

High Tech materialen en systemen

Life-sciences

Agro-Food



Logistiek



bedrijven

Water



Creative industrie



€1,5 mld
voor negen topsectoren



Energie



onderwijs en
wetenschap

overheid



Chemie

Tuinbouw en
uitgangsmaterialen



- Belangrijk om gezamenlijk doel / ambitie te formuleren
 - Geeft ASTRON en NWO “ammunitie” in internationale spel
 - Geeft ons samen zichtbaarheid in het Topsectoren-beleid

- Belangrijk om concrete interesses te formuleren
 - Maakt het mogelijk om effectief financiering te vinden

- Belangrijk om in deze fase realistische investering te laten zien, zowel van publieke partners (ASTRON) als van private partners.
 - Wenselijk vanuit Topsectoren, nodig voor EFRO

- Verschillende manieren om aan te haken
 - Sterk afhankelijk van interesse bedrijven