



Jet Propulsion Laboratory
California Institute of Technology

Interplanetary Network Directorate

SKA Science II

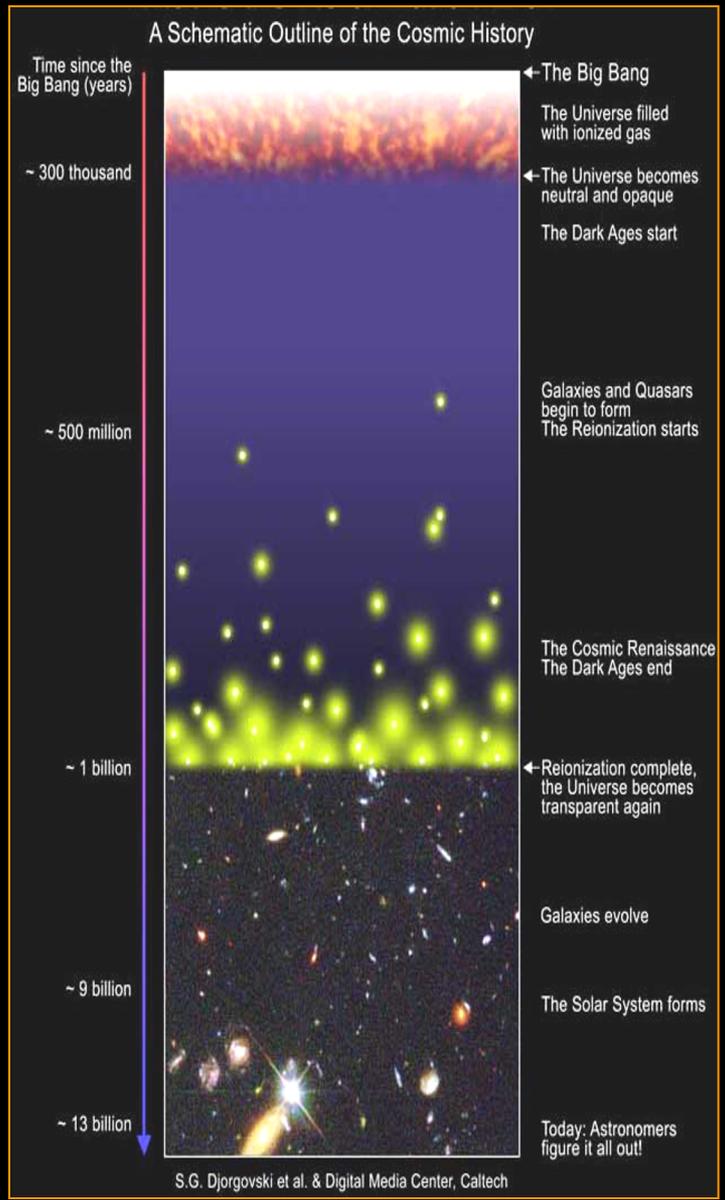
Discussion Session

Joseph Lazio

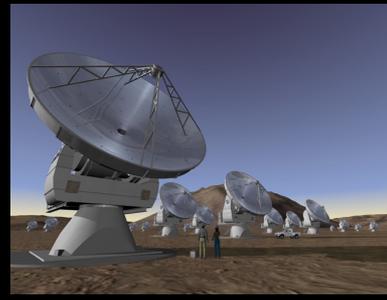
Positioning of the SKA

Discussion Topic I

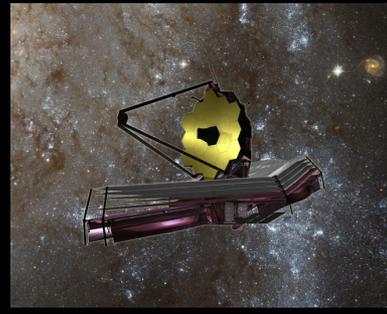
Epoch of Reionization



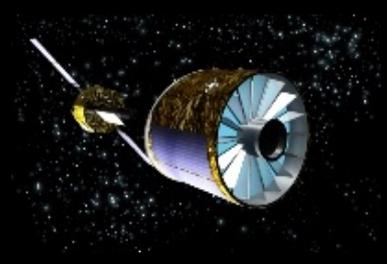
SKA: IGM and First Galaxies



ALMA: First Galaxies



JWST: First Stars and Galaxies



X-rays: First Black Holes

Positioning of the SKA



• Useful evolution

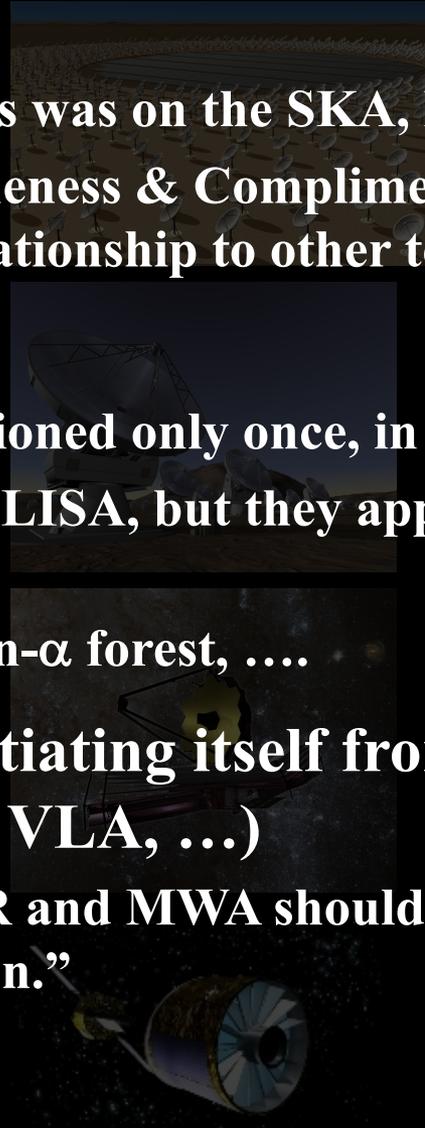
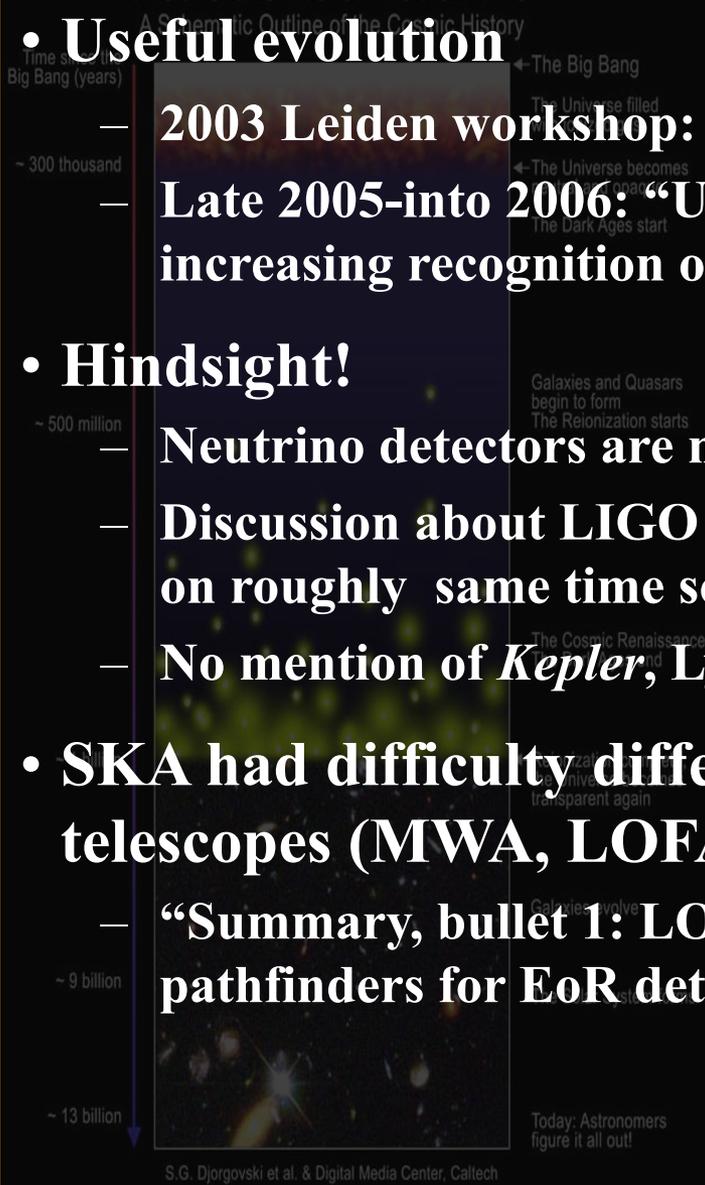
- 2003 Leiden workshop: focus was on the SKA, leading to Science Book
- Late 2005-into 2006: “Uniqueness & Complimentarity” memo, increasing recognition of relationship to other telescopes

• Hindsight!

- Neutrino detectors are mentioned only once, in passing;
- Discussion about LIGO and LISA, but they appear to be presented as on roughly same time scale;
- No mention of *Kepler*, Lyman- α forest,

• SKA had difficulty differentiating itself from other radio telescopes (MWA, LOFAR, VLA, ...)

- “Summary, bullet 1: LOFAR and MWA should be mentioned as pathfinders for EoR detection.”



SKA: IGM and First Galaxies

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Science Requirements Analysis

Discussion Topic II

Science Requirements

- **Tension between desire to enable/ensure flexible system capable of discovery and engineering need to understand what is to be constructed**
“should avoid setting requirements”

- **Change in culture, requirements are not something that ground-based community does well**

Struggle is not unique to the SKA---ELTs (or at least one of the U.S.-based ELT projects) has had the same issue