

TMT in the Astronomical Landscape of the 2020s

THIRTY METER TELESCOPE

Thirty Meter Telescope Science Forum

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July 17th - 19th 2014
Loews Ventana Canyon Resort
Tucson, Arizona

Topic: TMT in the Astronomical Landscape of the 2020s

Thirty Meter Telescope Observatory and NOAO will host the second TMT Science Forum at Loews Ventana Canyon Resort in Tucson, Arizona. The TMT Science Forum is an annual gathering of astronomers, educators, and observatory staff, who meet to explore TMT science, instrumentation, observatory operations, archiving and data processing, astronomy education, and science, technology, engineering, and math (STEM) issues. It is an opportunity for astronomers from the international TMT partners and from the US-at-large community to learn about the observatory status, discuss and plan cutting-edge science, establish collaborations, and to help shape the future of TMT.

One important theme for this year's Forum will be the synergy between TMT and other facilities in the post-2020 astronomical landscape. There will be plenary sessions, an instrumentation workshop, topical science sessions and meetings of the TMT International Science Development Teams (ISDTs).

Meeting agenda:
17 July: Plenary sessions
18 July: Parallel topical sessions, ISDT meetings, and TMT Instrumentation Workshop
19 July: Plenary sessions, panel discussions

WFIRST SDT Meeting – Jul29th, 2014

Jason Kalirai (STSci/JHU)

Charts from David Silva (NOAO, Director)

What's guaranteed for 2025?
The age of mega-surveys

The collage features the following logos and text:

- NOAO (National Optical Astronomy Observatories)
- AURA (Astrophysics Research and Community Activities)
- NSF (National Science Foundation)
- Dark Energy Survey
- GaiA (Gaia)
- Catalina Sky Survey
- Kepler (A Search for Terrestrial Planets)
- Planck (ESA satellite)
- SDSS III (Sloan Digital Sky Survey)
- Lofar (Low Frequency Array)
- HETDEX (Hobby-Eberly Telescope Dark Energy Experiment)
- SkyMapper
- VISTA (Visible and Infrared Survey Telescope for Astronomy)
- WISE (Wide-field Infrared Survey Explorer)
- Pan-STARRS (Panoramic Stellar and Transient Survey)
- Coming soon: ZTF (Zwicky Transient Facility)

TMT Science Forum, Tucson, 2014 (D1)

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Anything Missing?

Charts from David Silva (NOAO, Director)

How did exosystems form?
Variety is astounding! / Exolife hosts?

The collage features several key astronomical missions and concepts:

- AURA**: AURA logo in the top left.
- gpi**: Gemini Planet Imager logo.
- SPHERE**: Spectro-Polarimetric High-contrast Exoplanet REsearch mission logo.
- Kepler**: Kepler space telescope mission logo.
- Gaia**: ESA Gaia mission logo.
- TESS**: Transiting Exoplanet Survey Satellite mission logo.
- ALMA**: Atacama Large Millimeter Array logo.
- ESA Plato**: ESA Plato mission logo.
- 50 pc** and **100 pc**: Labels for two protoplanetary disks.

TMT Science Forum, Tucson, 2014 (D1)

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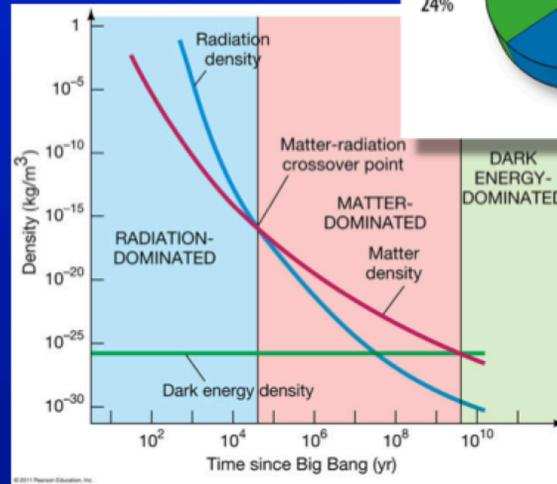
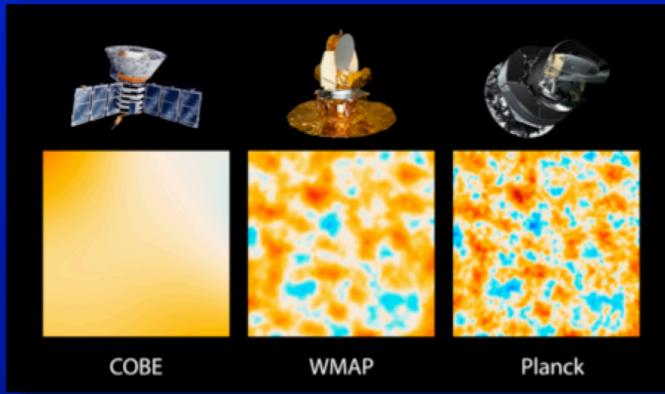
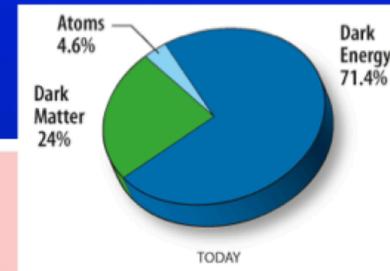
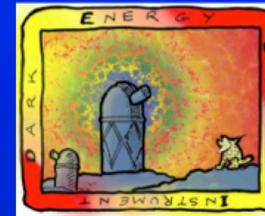
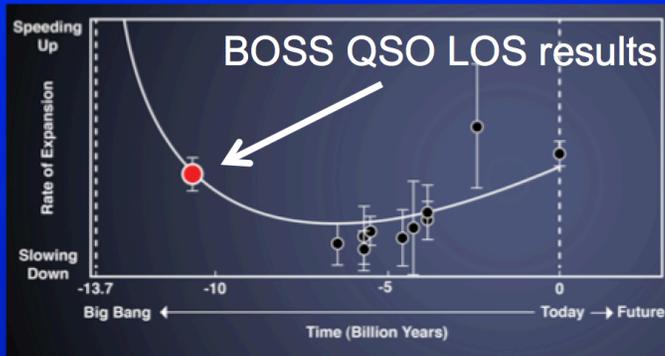
Anything Missing?

Charts from David Silva (NOAO, Director)



Dark energy 2025

Is dark energy density constant or not?
Are inflation & dark energy fields related or not?



TMT Science Forum, Tucson, 2014 (D1)

Anything Missing?

What we need to do

- 1.) Build multi-mission science roadmaps to tackle compelling questions
 - Lots of overlap in key science drivers, large communities
 - Contribute to TMT Science Roadmaps that are now being written
 - Repeat the JWST appendix but for a broader swath of future programs
 - “Key projects” being considered by 30-meters and LSST
- 2.) Give telecon presentations about WFIRST to the SDTs and SWGs of major future missions (JWST, ELT, GMT, TMT, LSST, etc.)
- 3.) Rip off the “TMT in the Astronomical Landscape of the 2020s” idea for WFIRST
 - Bring together members of these communities and invite keynote presentations at our science meetings (e.g., supplements the current “wide field meetings”)
- 4.) Kick off pure WFIRST science sessions at each AAS meeting
 - Forces community members to think hard about their GO program
 - Highlights diverse science potential from non-insiders
 - Following presentations, ask for short white papers
- 5.) Continue leveraging SDT members
 - >50 colloquia per year given by our science team
 - Please ask host institution for a meeting with students/postdocs about WFIRST
- 6.) Competitive theoretical/simulation funding program