ExoPAG3 Summary

Adapted from presentation given at:
APS Meeting, Washington DC
February 17, 2011
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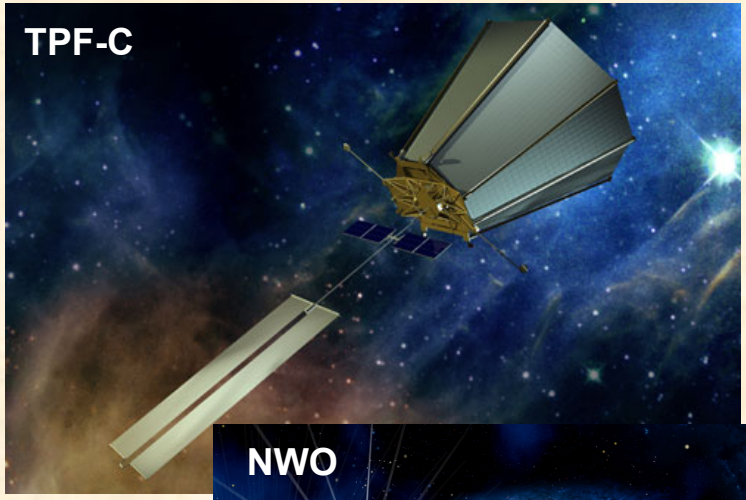
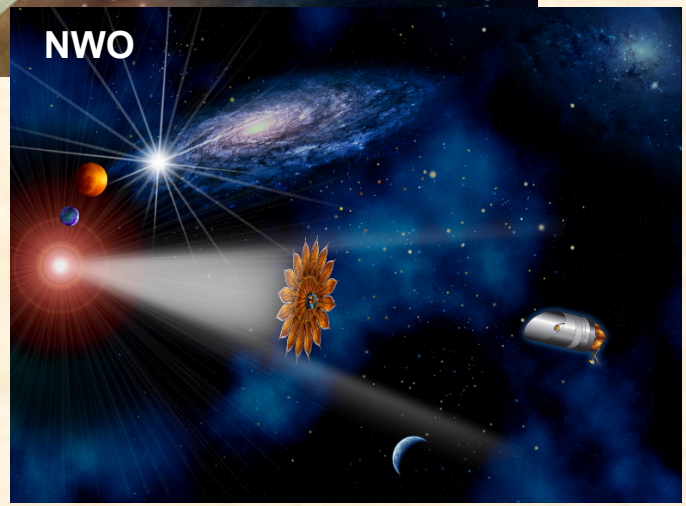
ExoPAG 3 Meeting

- ExoPAG 3 was held Jan. 8-9, 2011, in Seattle, just prior to the Winter AAS meeting
- Approximately 60-70 researchers attended
- Topics of discussion
  - Astro2010 overview and NASA's response (Alan Dressler/Doug Hudgins)
  - ESA Exoplanet Program briefing (Malcolm Fridlund)
  - Discussion of NASA Exoplanet Technology Program (Peter Lawson/Michael Moore/others)
  - Planning for a flagship mission for the next decade (All)
  - Ground-based RV surveys
    - i) Can they find Earth-mass planets? (Andrew Howard)
    - ii) Status of Kepler followup (Nick Gautier)

Points of scientific agreement (cont.)

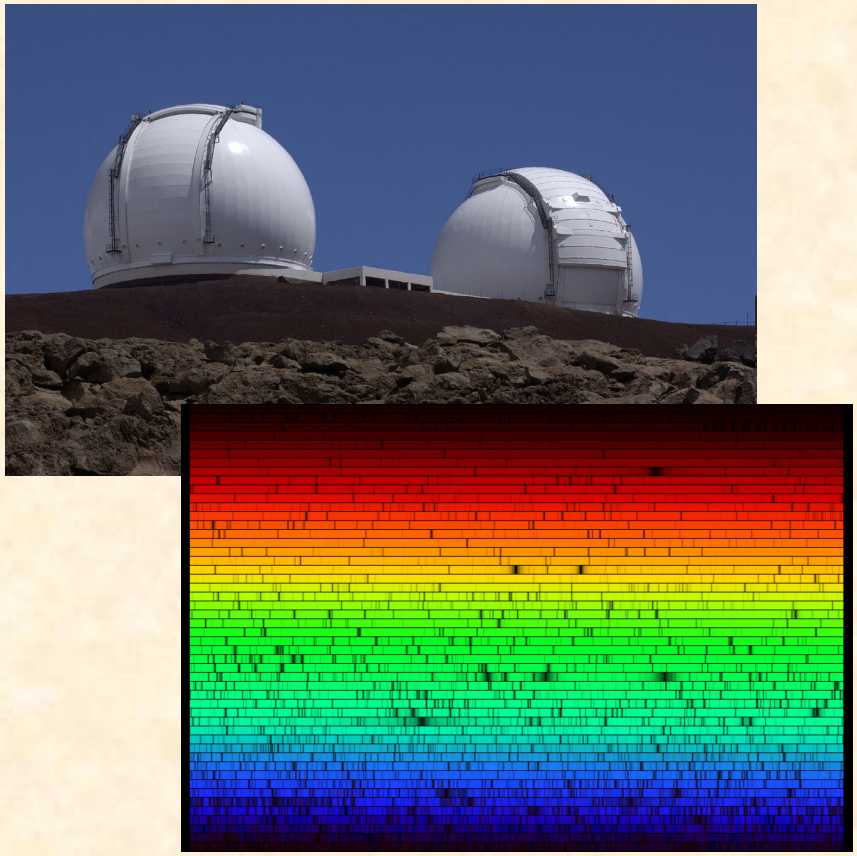
1. **The exoplanet science community's goal for a flagship space mission should be to find and characterize Earth-sized planets in the habitable zones of nearby F-G-K-M stars**
2. **The next flagship mission should be a large optical telescope, perhaps with UV and near-IR capability as well**
3. **The size of the aperture needed to satisfy Point 1 above as well as general astrophysics goals remains to be determined, but is likely to be ≥ 4 meters**





Points of scientific agreement (cont.)

4. **A significant increase in available time for precision radial velocity work, coupled with a new generation spectrograph (s), could contribute enormously to our general knowledge of exoplanets**
5. **In order to fully characterize an exoplanet, we need to know its spectrum, its actual mass, its orbit (semi-major axis and eccentricity), and perhaps other information, as well**



ExoPAG-3 Proposed Resolutions

- NASA should *not* continue to invest in *infrared interferometry* as the basis for a future New Worlds Flagship Mission; coronagraphs (including VNC) and external occulters represent the most viable mission architectures.
- The ExoPAG recognizes the need to get to a *mid-decade technology downselect* as described in Astro2010. Further, it is crucial that the community buy into the process and will accept and support the outcome, whatever that outcome might be.
- That process will include both continued support for technology development related to *coronagraphs* and *external occulters* (e.g. SAT/TDEM) and concept studies of a set of missions in these two categories.
- Next-gen UVOIR telescope community must be engaged with the process from the very beginning (including participation in SAGs).

ExoPAG-3 Proposed Resolutions

Concept studies:

Present – Spring 2012

- SAGs will define the minimum science requirements for the mission to achieve a top rating in the 2020 decadal survey
- SAGs will coordinate to define bounds for the scope and content of the studies and a set of "ground rules" to be followed so that the results of the two studies are as directly comparable as possible.
- SAG output presented and discussed at ExoPAG-5 in Jan. 2012, finalized by Spring 2012.

Summer 2012

- NASA Headquarters issues solicitation for participation in Interim Science Working Groups (ISWG) to conduct (funded) concept studies; membership of working groups selected by end of 2012.

ExoPAG-3 Proposed Resolutions

Concept studies (continued):

Jan. 2013

- Concept studies begin.

Jan. 2014

- Concept study reports completed and submitted to NASA

Summer 2014

- Senior Review-style evaluation of the concept study reports conducted.
  - Organized by NASA HQ
  - ISWGs present the results of their study in a face-to-face meeting with review panel, discuss any issues/questions with the panel.

December 2014

- Review panel submits report to NASA summarizing their findings and recommendations for the architecture downselect.

2015

- Report and resultant NASA decisions fed into DSIAC.