

## **ASAP organizes a series of “AO2: From Science to Design” meetings**

The ASAP AO2 committee has organized meetings for all ASAP members to discuss potential new designs for AO2. The last meeting was held on Wednesday, June 8. The intent is to bring the communities together to find a consensus design that will aid in transforming Congressional support for Arecibo Observatory into a commitment to fund a new AO. We as scientists can suggest but not dictate a design. We are aiming at proposing a design which addresses what is needed and wanted for current and future science, for all scientific areas of the AO. Any design we propose will need a professional engineering evaluation, most likely some modification, and validation. Engineering companies will likely also contribute valuable ideas for design improvements. Design questions that have been discussed in the meetings so far have been:

- The sinkhole, for which various options have been proposed, perhaps with greater sensitivity, increased southern pointing, observations out to 30 GHz, and extending the reach of planetary radar observations to Uranus.
- Transmitters, perhaps including bands near or including 4 GHz, 400 MHz, 40 MHz, and 4 MHz (i.e. HF), with concurrent, collinear, CW, and bistatic operation.
- Additional receiving sites for modern vector and MIMO (multiple in [tx], multiple out [rx]) configurations.
- HF systems, perhaps including a high-power HF radar mode, and a separate low-power ionosonde and imaging radar.

Slides from several previous ASAP talks focus on ideas for new Arecibo systems, discussing, respectively, options for a primary single dish, a primary rigid array, multipurpose multistatic radar systems, and planetary radar systems can be found at:

[http://naic.edu/~isham/ASAP/talks/Nolan\\_20210902\\_dish.pdf](http://naic.edu/~isham/ASAP/talks/Nolan_20210902_dish.pdf) (Michael Nolan, Sep 2, 2021)  
[http://naic.edu/~isham/ASAP/talks/Roshi\\_20210923\\_NGAT.pdf](http://naic.edu/~isham/ASAP/talks/Roshi_20210923_NGAT.pdf) (Anish Roshi, Sep 23, 2021)  
[http://naic.edu/~isham/ASAP/talks/Isham\\_20220506\\_newAO.pdf](http://naic.edu/~isham/ASAP/talks/Isham_20220506_newAO.pdf) (Brett Isham, May 6, 2022)  
[http://naic.edu/~isham/ASAP/talks/Nolan\\_20220506\\_planetary.pdf](http://naic.edu/~isham/ASAP/talks/Nolan_20220506_planetary.pdf) (Michael Nolan, May 6, 2022)

Science and design interact in both directions. Slides from other ASAP talks discussing both Arecibo science and design can be found [here](#). To join in next time (date and time TBD), please contact [secretary@areciboscience.org](mailto:secretary@areciboscience.org).