



# ***AstroData2020s Science Workshop***

***Dec 4th - 7th 2018  
Pasadena, Ca.***

***Science Opportunities  
with Astrophysics  
Archives of the Next Decade***

***meeting.ipac.caltech.edu/astrodata2020s***

## Work Plan

Vandana Desai  
Caltech/IPAC-IRSA





# Eight Science Themes

1. Planetary Systems
2. Star and Planet Formation
3. Stars and Stellar Evolution
4. Formation and evolution of compact objects
5. Resolved stellar populations and their environments
6. Galaxy Evolution
7. Cosmology and Fundamental Physics
8. Multi-Messenger Astronomy and Astrophysics



# Four (Somewhat Arbitrary) Flavors of Parallel

Star Formation

Galaxies & Cosmology

Science Platforms &  
Archives

Time Domain



# Charge to Parallel Sessions

1. Introduce yourselves and choose someone to report back (15 min talk + 5 min questions) to the Plenary Sessions on Thursday and Friday.



# Charge to Parallel Sessions

2. Most Parallel Sessions have one scheduled talk to stimulate discussion. The remainder of the time is reserved for discussion and writing! Use google docs (see Slack for links) to collaboratively capture important ideas, sound bites, paragraphs, and key plots that should appear in the white papers received by the Decadal Committee.



## Which science goals would be most at risk without advanced data facilities?

- What are the most important missions and facilities for accomplishing high priority science in the 2020s?
- Evaluate the size and complexity of the data sets that are expected to arise from these missions.
- What theory and simulation data sets will be needed to interpret observational data sets?
- If the data were available now, would existing data facilities be sufficient for achieving the science goals?
- How do the current astrophysics archives and platforms need to evolve to support new science opportunities with the data sets in the 2020s?
- What science could be done with existing data sets that isn't happening because of difficulties in exploiting the data?
- What are the key plots and sound bites that we need to show the Decadal Committee?



# Parallel Discussions

- The previous list is not meant to be constraining. It's just meant to get the conversation going.
- The parallel sessions are self-organized. You choose where to go, and you can mix it up. Go where you can learn or contribute.
- We are hoping discussions are lively!
- And respectful.
  - <https://aas.org/ethics>



	Time	Star Formation	Galaxies & Cosmology	Time Domain	Science Platforms & Archives
A	Wed 2:25-3:10	<i>White Paper: Galactic Star Formation</i> Roberta Paladini KS 300	<i>Joint Processing of Euclid, WFIRST, LSST</i> Abhishek Prakash KS 400	<i>The Big Data Challenge for Pro-Am Observational Campaigns</i> Padma A. Yanamandra Fisher KS 415	None
B	Wed 3:30-5:00	<i>Discussion: Galactic Star Formation</i> Sean Carey KS 300	<i>The Dark Energy Survey</i> Matias Carrasco Kind KS 400	None	<i>New algorithms for high dynamic range imaging with wideband interferometer data</i> Jun Hui Zhao KS 415
C	Thu 11:10-12:40	None	<i>ATLAS</i> Yun Wang KS 400	TBC David Ciardi KS 300	<i>Leveraging current and future technologies for scientific discovery</i> Matias Carrasco Kind KS 415
D	Thu 2:00-3:30	<i>Discussion: Various White Papers</i> Janice Lee KS 300	None	<i>What to do with a billion time series?</i> Matthew Graham KS 410	<i>Discussion &amp; Writing</i> KS 415
E	Thu 3:50-5:20	<i>Discussion / Writing</i> KS 300	<i>Spectroscopic Databases and Manifold Learning for Surveys of the 2020s</i> Dan Masters KS 400	<i>The Role of Archives for Identifying EM Counterparts to GW Events</i> David Cook KS 415	None
F	Fri 10:50-12:20	<i>Discussion: Archiving Theory Data</i> Phil Hopkins KS 300	<i>Use Cases for NED in the Next Decade</i> Joe Mazzarella KS 400	<i>Discussion: Predicting the deep needs of a 3rd decadal scientist?</i> Matthew Graham KS 415	None