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Anderson F. S.
An Architecture to Guide Planetary Exploration for the Next Three Decades: Understanding Solar System Evolution Through Time **[#8174]**
We propose a new architecture of "understanding solar system evolution through time" to explore the history of every process in the solar system, providing a single unifying theme to inclusively argue for an array of continuing and new science goals.

Aslam S. A'Hearn M. F. Clark P. Daly M. Feaga L. Folta D. Gorius N. Hewagama T. Hurford T. Keidar M. Livengood T. Malphrus B. Mumma M. Nixon C. A. Proulx C. Sunshine J. Villanueva G.
Waypoints for Opportunistic SmallSat/CubeSat Missions to Comets and Asteroids **[#8182]**
A "waypoints" concept is given that eliminates the impact of launch delays for missions to study transient celestial events e.g., comets/asteroids reaching the inner solar system for the first apparition.

Estrada P. R. Umurhan O. M. Gorti U.
Evolution of Circumstellar and Circumplanetary Disks **[#8231]**
The rapid discovery of exoplanets along with unprecedented imaging of protoplanetary disks is improving our understanding of the various stages of disk evolution leading up to and including planet formation and by association satellite formation.

Fries M. Graham L. John K. Hamilton J. McCubbin F. Niles P. Stansbery E. Welzenbach L.
The Asteroid Belt Cycler (ABC) Concept: A Comprehensive Asteroid Belt Sample Return Campaign Enabled by Crewed Presence in Cislunar Space **[#8200]**
ABC samples all asteroid classes in the asteroid belt with re-usable robotic sample return spacecraft, bringing samples to a crewed platform in cislunar space. The crew refit the SR spacecraft and carry samples to Earth inside the crewed vehicle.

Kramer E. A. Bauer J. M.
CoSTrS: Cometary Survey of Trail Samples **[#8229]**
The Cometary Survey of Trail Samples (CoSTrS, pronounced "coasters") would expand upon the success of the Stardust mission by sampling the dust trails of several short-period comets.

Noll K. S. Englander J. A.
The Transneptunian Solar System in 2050 **[#8048]**
Transneptunian objects in the Kuiper Belt and dynamically related populations are remnants of the protoplanetary disk. Study of these objects will require multiple approaches and missions including existing and near future technologies.

Pike W. T. Slingsby-Smith Z. McClean J. B.
Solar System Geophysics with the Silicon Seismic Package: From Earth to Europa **[#8184]**
Seismometry can be used to understand the origins of solar system bodies. Future science goals and performance requirements are summarized. The 2018 InSight SP microseismometer could be adapted for a range of missions, e.g. a Europa lander.

Saxena S. K.
Thermochemistry of Planet Formation **[#8076]**
Argument is made on the importance of thermodynamic databases in our future planetary exploration.

Shearer C. K.
Sampling the Solar System. A Critical Exploration Component for Future Planetary Discovery **[#8191]**
Sample return is a critical component for understanding our solar system (and other solar systems), and advancing human exploration activities. Here I will examine potential pathways for evolving sample return technologies needed to carry out increasingly complex missions.

Song P. Galkin I. Reinisch B. W.
Radio Technologies for Planetary Explorations **[#8026]**
The concept development of a Planetary Advanced Radio Sounder (PARS) for planetary missions had been funded by NASA. The presentation will summarize the concepts and the developed technologies.

Whittaker W. L. Boston P. J. Cushing G. Titus T. N. Wagner R. V. Colaprete A. Haruyama J. Jones H. L. Blank J. G. Mueller R. P. Stopar J. D. Tabib W. Wong U.
Planetary Pits and Caves: Targets for Science Exploration **[#8207]**
Planetary pits, caves, and voids are compelling mission destinations for science, exploration, and habitation throughout the solar system. Questions of origins, geology, mineralogy, stratigraphy, gravimetry, aging, and astrobiology abound.

de Val-Borro M. Milam S. N. Cordiner M. A. Charnley S. B.
Prospects for the Study of Comets with Surface Sample Return Spacecraft **[#8245]**
Comets are small bodies composed of molecular ices and dust that spent most of their lifetime far from the Sun.