Fundamental Physics Program
and the NASA Mission

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Physical Sciences Research (PSR) and the NASA Mission

- To understand and protect our home planet
  - PSR Fundamental and Applied Research

- To explore the universe and search for life
  - PSR Fundamental Research
  - PSR Strategic Research

- To inspire the next generation of explorers
  - PSR Fundamental Research
  - PSR Strategic Research

... as only NASA can
“The common ideas of physics have been applied over distances ranging from the realm of string theory to the furthest reaches of the universe. The results have allowed an understanding of a staggering variety of phenomena and lay the foundation for further research as we probe new frontiers at all distances.” (NRC/BPA report)
Fundamental Physics
Expand our Understanding and Enrich Lives

- Standard Model
- Relativity Test
- Free-Flying nano-gravity Laboratory
- Space-based Atomic clocks
- Biomolecular Physics
- Materials
- Combustion
- Fluids
- Bose-Einstein Condensates
- Atom Laser Research

- Department of Energy
  AMS collaboration
- Department of Commerce
  NIST investigators

- Physics
- Low-Temperature Physics
- Bioengineering
- Biotechnology
The accomplishments of Physics, the increasing power of its instruments, and its expanding reach into other sciences have generated an unprecedented set of scientific opportunities. The committee has identified six such “Grand Challenges” listed below in no particular order:

- Developing quantum technologies *
- Creating new materials *
- Understanding complex systems *
- Unifying the forces of Nature *
- Exploring the universe
- Applying Physics to Biology *

* OBPR Physical Sciences research content relevant