KISS Workshop on the

Science And Enabling Technologies to Explore of the Interstellar Medium (ISM)

Workshop Organizers:
Leon Alkalai (JPL), Ed Stone (Caltech), and Lou Friedman

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Caltech, Pasadena
Mission Capability Goals

1. **Get there sooner**: 100+ AU in 10 years

2. **Travel faster**: 5x – 10x Voyager speed

3. **Survivability**: 50-100 years
Workshop Objectives: Exploring the ISM

1. Articulate vision and key & compelling science questions
2. Identify specific near-term science exploration goals
3. Set mission objectives and concepts for the next 10-20 years
4. Specify Flight System and Measurement Requirements
5. Assess technology drivers and propose technology development plan
Why now?

- Voyager and Kepler science discoveries, GALEX, Herschel
- New Horizons: mission to Pluto and beyond
  - Thermal Protection System, etc.
- SLS Launch Vehicle
- Technology progression/breakthroughs in the past decade
  - Deep Space Optical Communications: DSOC
  - CubeSats: systems miniaturization
  - Payload miniaturization
  - Rosetta Hibernation, long-term survivability
  - Solar Sail technology development
  - Power, Energy storage
  - Mission Design and trajectory analysis
Notes and Sentiments on the 1st day of the Workshop

- Can we do a mission sooner rather than later? ~ 2024
  - Technology freeze 2010
  - Solar Sails latest technology
  - eMMRTG ~ 2024 launch
  - SLS Block 1B

- Is exploring the LISM a self sufficient and compelling target:
  - 100 – 200 AU

- Are there Technology Demonstrations worth proposing?
  - TPS, Perihelion burn (Oberth maneuver)

- Is there a low-cost ‘armada of small probes’ that are possible in the near-term, as incremental science to the program science goals (LISM, etc.)