Micro Power Sources: Objectives

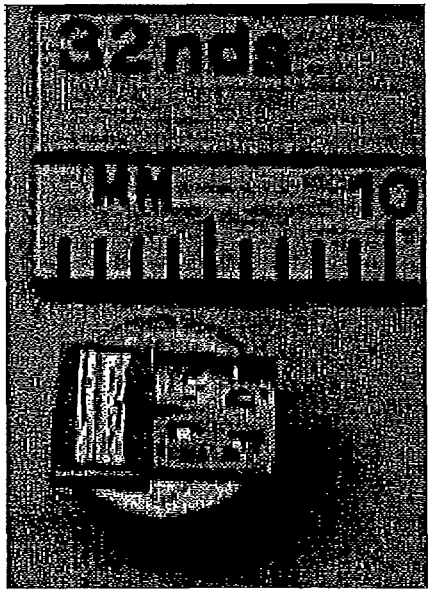
Objective: Develop low mass/volume power sources, in concert with the development of low power electronics/MEMS devices.

Example Applications:

- Autonomous/Distributed Sensing
- Rad-hard CMOS memory
- Isolation of analog sensors from digital noise
- Distributed power: point-of-use

Benefits to NASA:

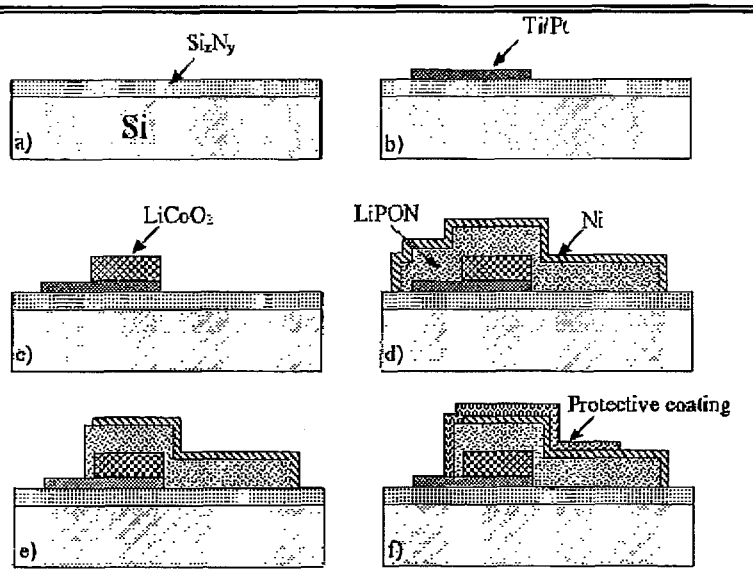
- Affords greater level of integration
- Allows for redundancy ⇒ reliability ⇒ safety
- Changes paradigm of spacecraft architecture
  - Power woven into the entirety of the vehicle

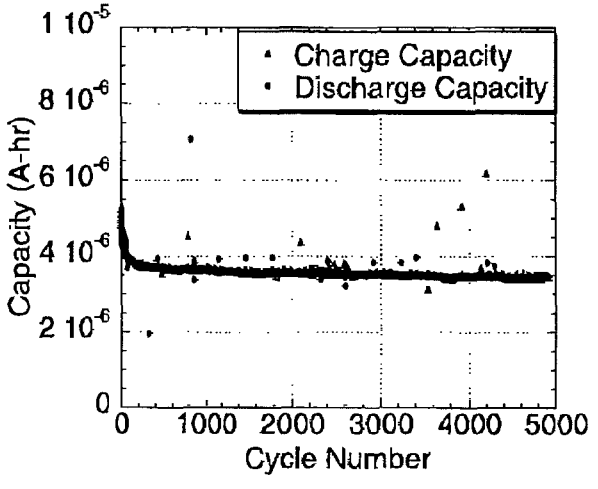


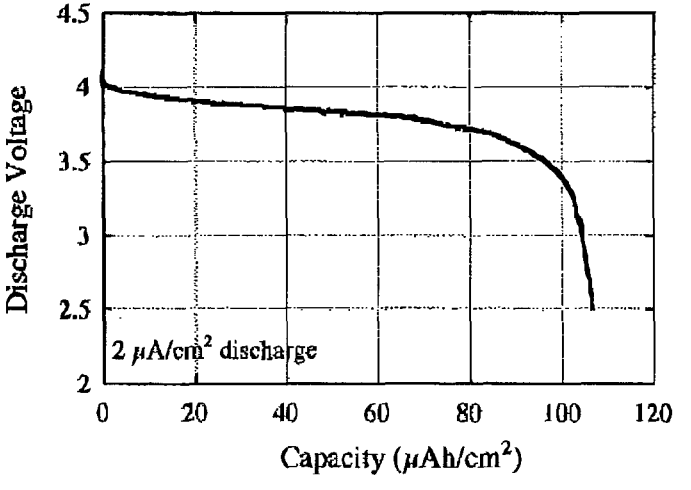
U. C. Berkeley optical transmitter array on a coin cell
(http://robotics.eecs.berkeley.edu/%7Epister/SmartDust/)

Thin Film/Micro-Battery

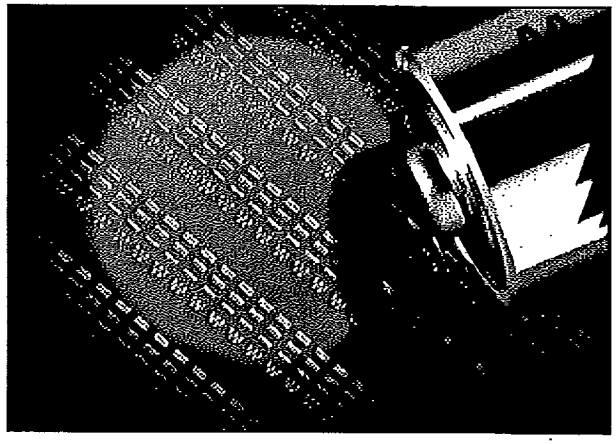
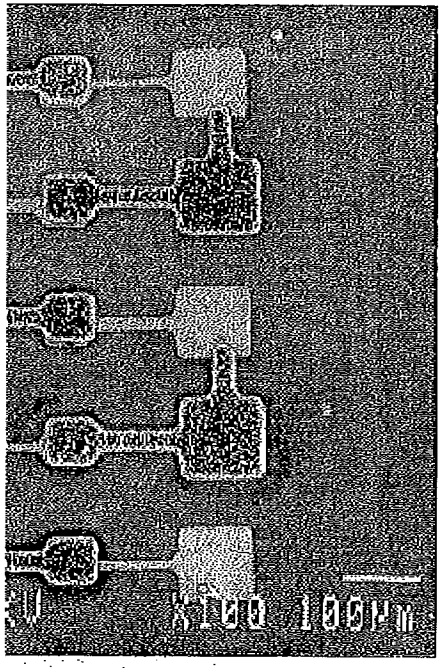
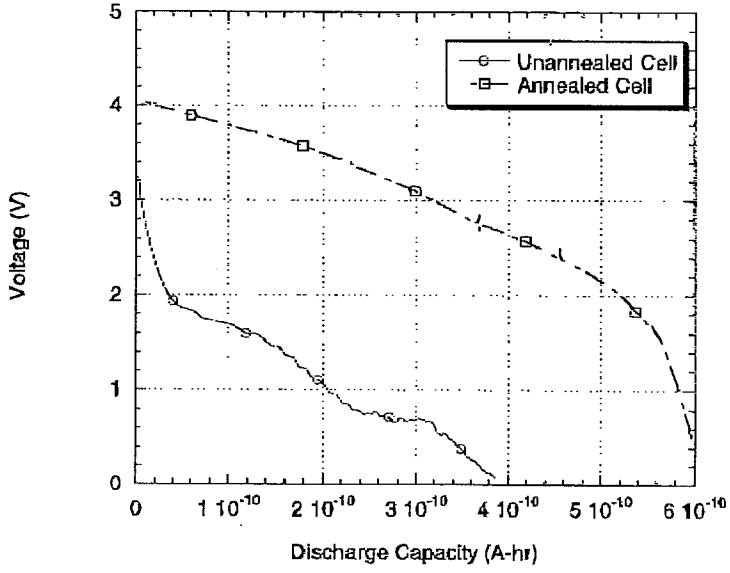
- Superior charge retention for long cruise missions
- Superior cyclability
- Fully integratable
- Robust to temperature extremes
- Leak-proof







Thin Film/Micro-Battery

JPL

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