General Discussion: Practical Biosignatures that can be Exploited to Search for Life in situ in the Solar System and from far on Extrasolar Worlds	*Moderator:* *Gary Blackwood, Jet Propulsion Laboratory*

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Statement of Task:

Expert dialogue on the current status of extraterrestrial life detection and related issues:

1. What is our current understanding of the limits of life and life's interactions with the environments of planets and moons?
2. **Are we today positioned to design, build and conduct experiments or observations capable of life detection remotely or in situ in our own solar system and from afar on extrasolar worlds?**
3. How could targeted research help advance the state of the art for life detection, including instrumentation and precursor research, to successfully address these challenges?

General Discussion Topics

Based on input from Committee Members

- What's Changed since 2000
- In-Situ and Remote
- Solar System & Extrasolar
- Are we Ready?
- What we can Learn from One Another

Topic 1:

- What's changed from 2000:
  - Technical innovations?
  - Science discoveries?
  - New understanding?

Discussion Topics

What's Changed since 2000

In-Situ and Remote

Solar System & Extrasolar

Are we Ready?

What we can Learn from One Another

Topic 2:

- In situ and remote sensing:
  - What should we search for first, and why?
  - What processes should we use?
  - How can we improve the robustness of detection and interpretation?

Discussion Topics

What's Changed since 2000

In-Situ and Remote

Solar System & Extrasolar

Are we Ready?

What we can Learn from One Another

Topic 3:

- Solar System and Extrasolar:
  - Fingerprint on a world: what's common to both?
  - What's practical for remote and in-situ detection?

Discussion Topics

What's Changed since 2000

In-Situ and Remote

Solar System & Extrasolar

Are we Ready?

What we can Learn from One Another

Topic 4:

- Are we today positioned to engineer and observe life detection remotely or in situ:
  - In our solar system?
  - On exoplanets?

Discussion Topics

What's Changed since 2000

In-Situ and Remote

Solar System & Extrasolar

Are we Ready?

What we can Learn from One Another

Topic 5:

- What can we learn from one another and gain from this work:
  - In-situ and remote?
  - Solar System and Extrasolar?
  - Across disciplines: planetary, astronomy, biology, geology, oceanography, geochemistry, other?

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