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Chemistry Office Hour

Today's Topic: Molecular Foundations for
Biotechnology (NSF 21-540)

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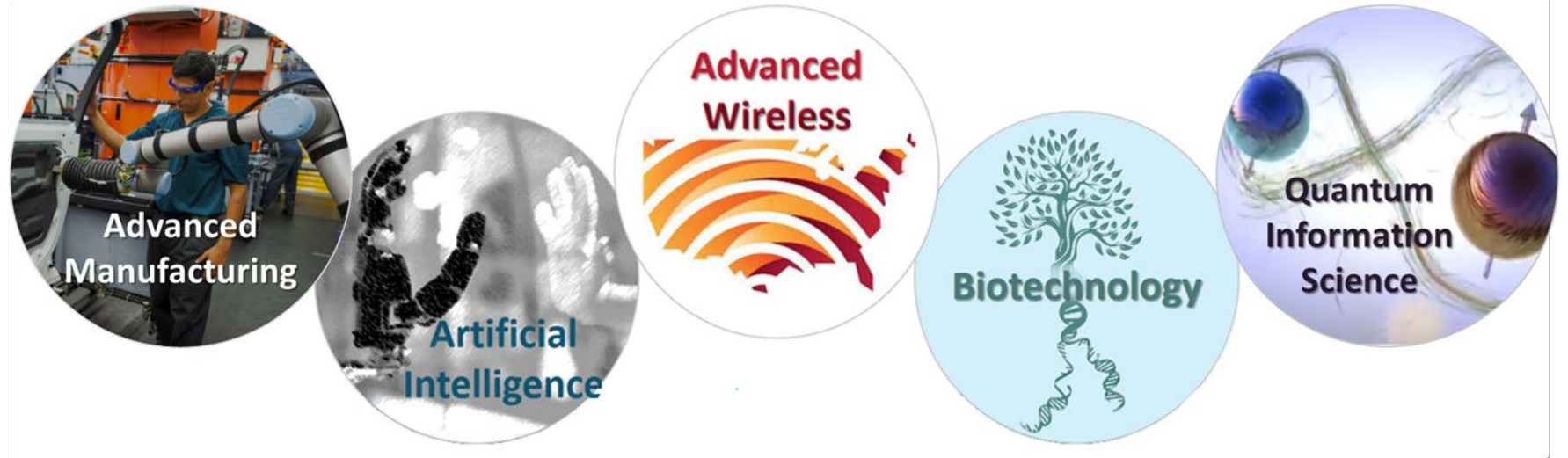


National initiative: Industries of the Future



Sethuraman Panchanathan
Director, NSF

The Industries of the Future are cross-cutting, convergent, and independent fields of research that collectively offer enormous economic potential and are critical to the Nation's long-term economic and national security



“An optimist takes the helm at the National Science Foundation” – Science magazine, July 6, 2020 – Jeffrey Mervis

Molecular Foundations for Biotechnology

- One of Division of Chemistry's responses to Industries of the Future
- A multi-year campaign is envisioned, with varying annual themes
- This year's solicitation calls for synergistic scientific partnerships grounded in the principles of synthetic, physical organic, and molecular recognition chemistry to the development and deployment of fundamentally new techniques to modify the structure, function, and/or fate of proteins interacting with small molecules for important applications in biotechnology



Targeted Areas

- Development of novel bioorthogonal chemistry that can be used to study protein structure and function in complex biological environments.
- Highly innovative methods for the selective labeling of (i) specific domains or motifs in proteins; (ii) specific classes of proteins based on activity class or active site architecture (e.g. creative activity-based protein profiling); or (iii) proteins in specific cellular compartments.
- Creative methods that use small molecules to alter the fate of proteins, for example, via targeted protein degradation beyond conventional bifunctional probe-based approaches.



Funding Mechanism

- Chemistry-led, synergistic collaborative studies, not a single PI program
- The studies must be led by an Institution of Higher Education (IHE). Non-profit, non-academic research organizations may be funded partners. Additional unfunded partners may include government agencies (including national labs), for-profit organizations, and international organizations.



Review Criteria

- Intellectual Merit & Broader Impacts
- Potential for significant impact in chemistry, including chemical biology
- Potential for significant impact in biotechnology
- Likely synergy and effectiveness of the proposed partnership in meeting the goals of the proposed project



Other Information

- Budget info: each award up to \$1.5 M/3yr; 2-4 awards expected
- Letter of intent (LOI): required, due on Jan 14, 2021
- Full proposal: due on March 16, 2021
- Review processes: subject area suitability screening, panel/ad hoc review
- Funding decisions: Expected Summer, 2021

Weblink: https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505848&org=NSF&from=home





Questions?

