

Fostering Discoveries and Discoverers (AKA “Strengthening the Core”)



F. Fleming Crim
Chief Operating Officer
National Science Foundation

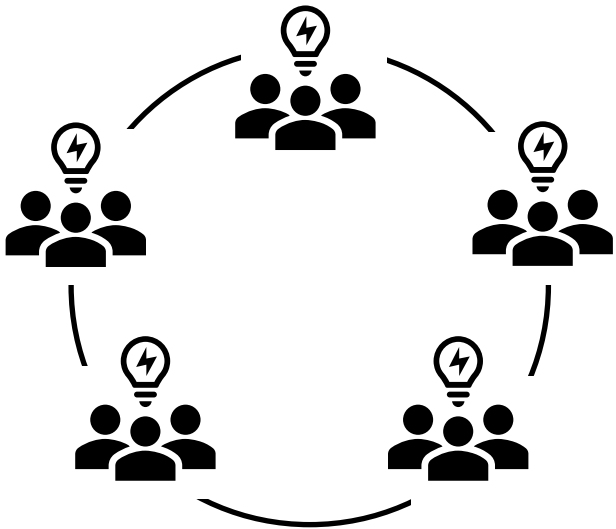
Matt Wilson
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Fostering Discoveries and Discoverers

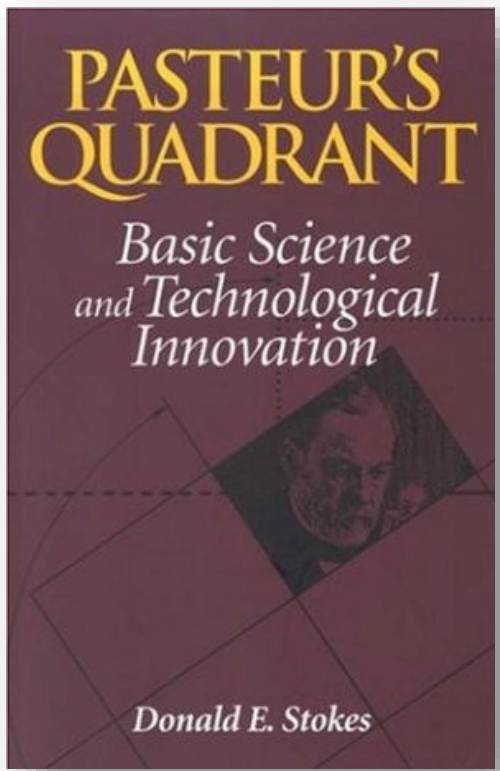
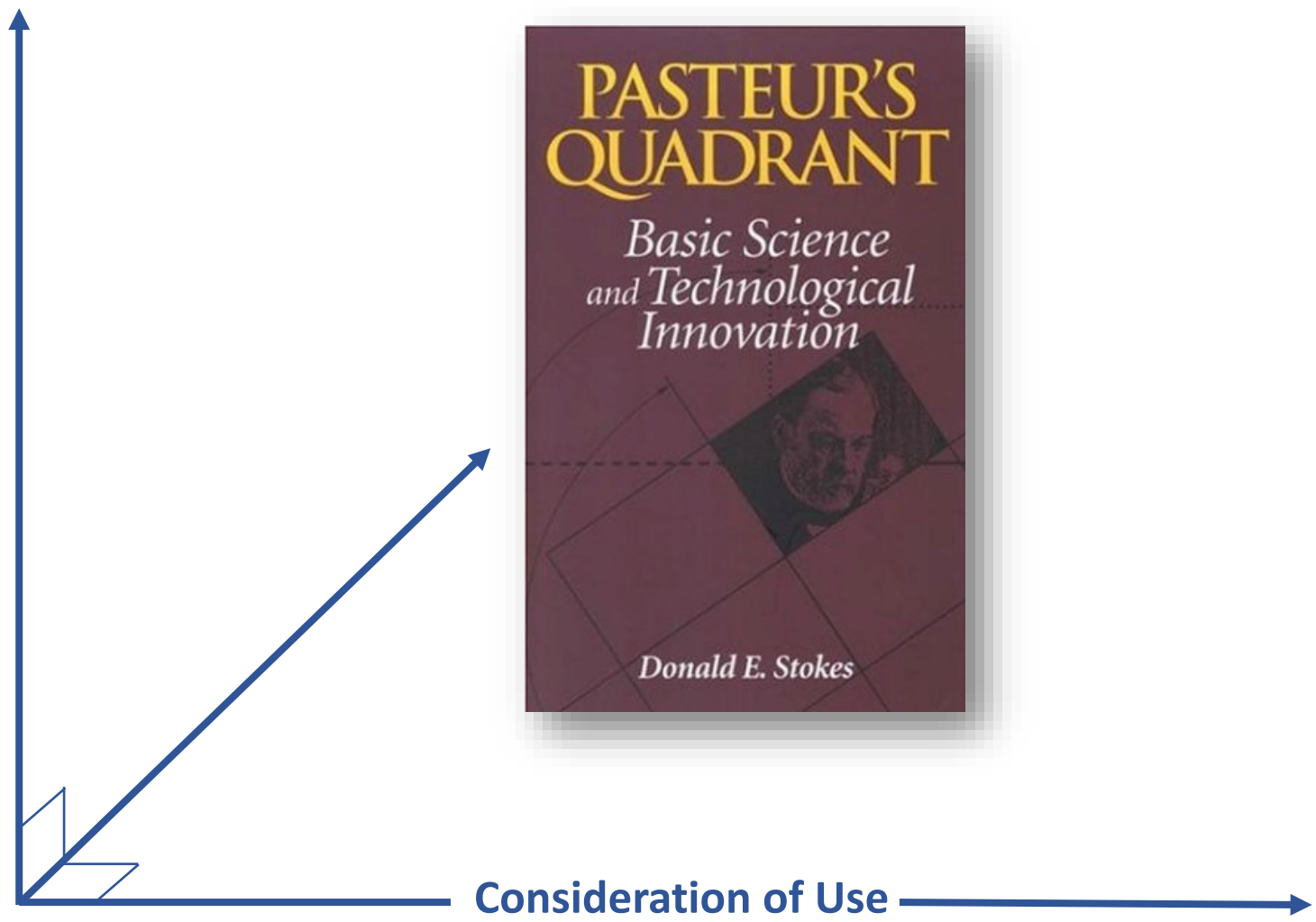
What about the “core”?

Some thoughts 



- Investigator or community initiated
- Driven by curiosity
- Basic or fundamental
- Responds to continuing programs
- Constantly evolving at the frontiers of discovery
- **A defining characteristic of NSF – the core mission**

Quest for
Fundamental
Understanding



Quest for
Fundamental
Understanding

Pure Basic Research

Use-Inspired Basic Research



Bohr



Pasteur

Pure Applied Research



Edison

Consideration of Use



Quest for
Fundamental
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Curie



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Carver



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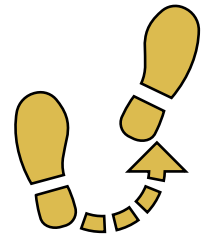
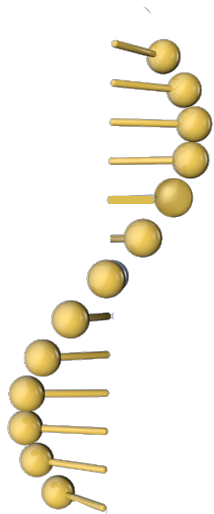
Carver



Edison

Translation
Innovation

Consideration of Use



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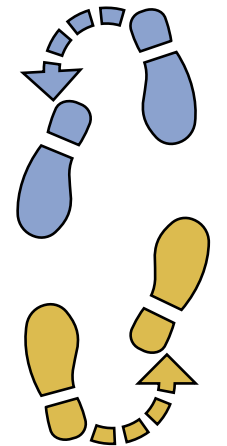
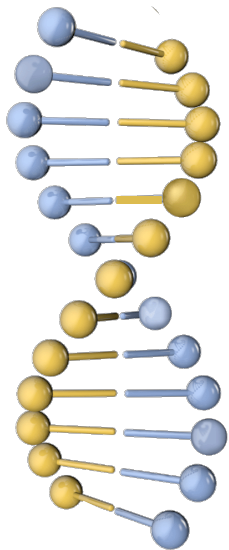
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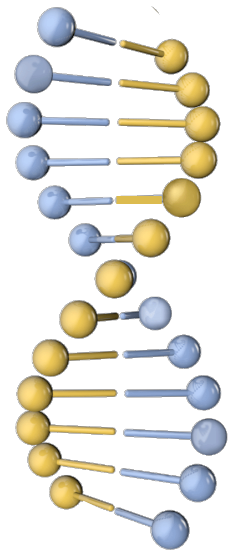


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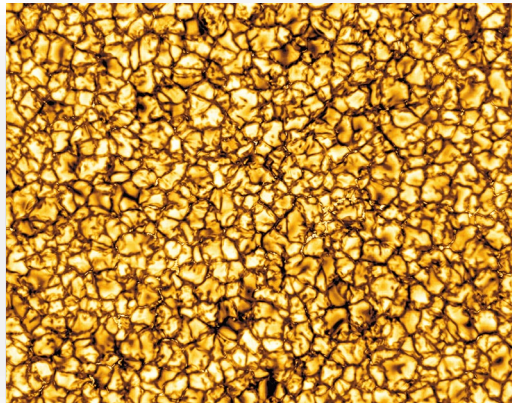
As NSF Grows and Evolves

Discovery Research is central to the NSF mission

Working at the frontiers of knowledge



DKIST First Image



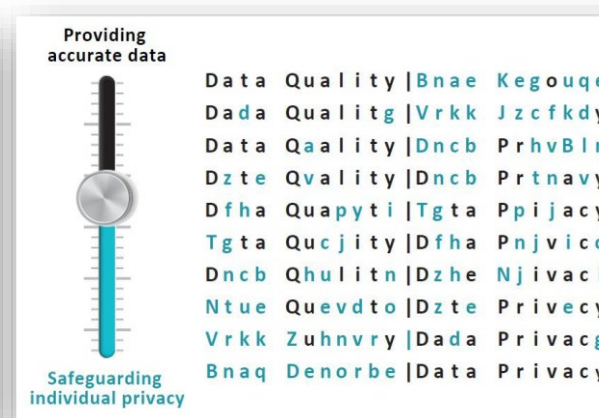
NSO/NSF/AURA

YInMn Blue

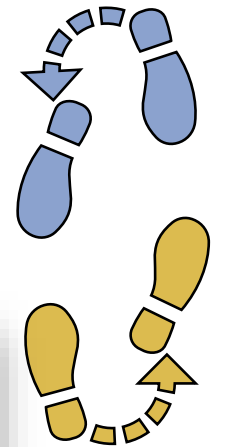


M. A. Subramanian

Differential Privacy



Michael Hawes, US Census



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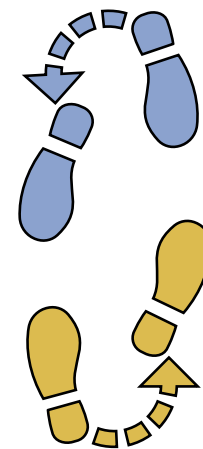
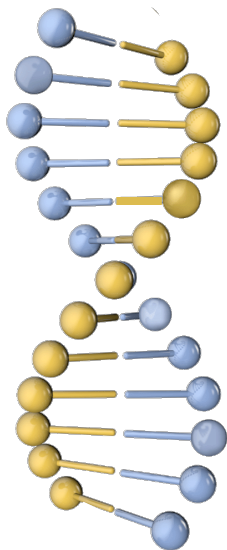
Working at the frontiers of knowledge

⚠ Beware of false dichotomies ⚠

YInMn Blue



M. A. Subramanian



Fostering Discoveries and Discoverers

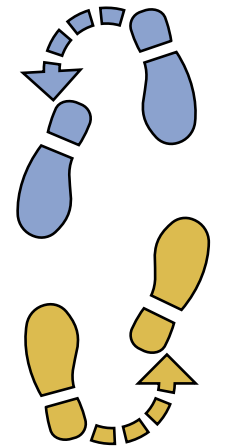
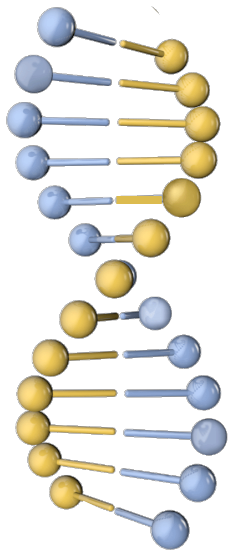
As NSF Grows and Evolves

Discovery Research is central to the NSF mission

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First new blue pigment in 200 years !



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Coloration Industry

An Embarrassment of Riches (Only a Few Examples)

Pure or Use-Inspired Basic Research

Translation and Innovation

Foundations of Electronic Marketplaces:
Game Theory, Algorithms, and Systems

Algorithms for Kidney Exchange

Bacterial Immunity

CRISPR

Structural Biology, Computer Science,
Physics, and Engineering (1980s)

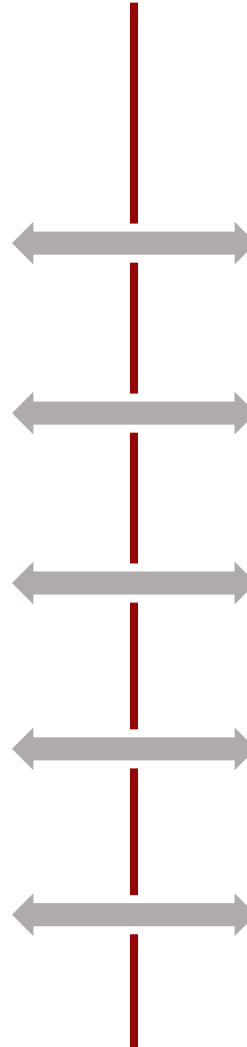
Cryo-Electron Microscopy

Fundamental Research in Economics
and Psychology

Behavioral Economics

Fundamental Research in Synthetic Biology
(Directed Evolution)

Synthetic Pheromones, Pest Control



Fostering Discoveries and Discoverers

Enhancing the Basic Research Strand Further

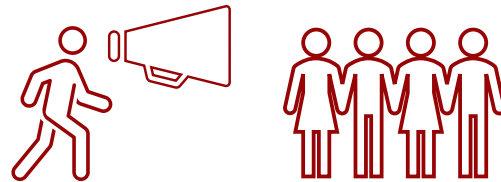
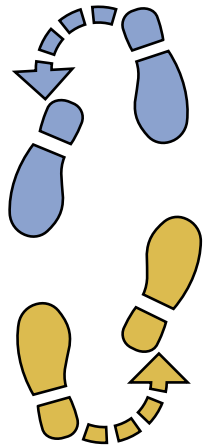
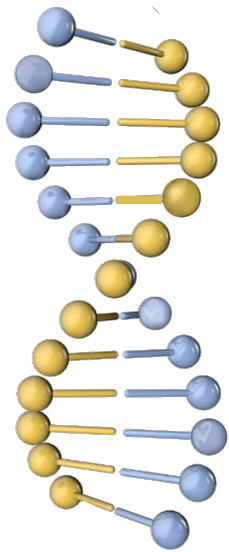
Use the Flexibilities of NSF

Capacity Building

Culture, People, and Risk Taking

Strategic Prioritization

Messaging a Range of Audiences



Fostering Discoveries and Discoverers

Enhancing the Basic Research Strand Further

Use the Flexibilities of NSF

Capacity Building

Culture, People, and Risk Taking

Strategic Prioritization

Messaging a Range of Audiences

Public, Research Community, Congress, White House, ...

