

# Research Funding Opportunities for Early-Career Physics Faculty

**Mats Selen, University of Illinois**

(for Richard Wiener Senior Program Director  
Research Corporation for Science Advancement  
Tucson, Arizona)



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Home

About

[Mission and Vision](#)

[Our History](#)

[Board of Directors](#)

[Advisory & Review Groups](#)

[Staff](#)

[Annual Reports & Financials](#)

[Frequently Asked Questions](#)

[Publications](#)

[Contact Us](#)

Cottrell Scholars

Scialog<sup>®</sup>

Awards Database

Partnerships

Events

News

search

## Mission and Vision

‘Bet on the youngsters. They are long shots but some of them pay off.’

[Frederick Gardner Cottrell](#)

### Mission Statement

The Mission of Research Corporation for Science Advancement is to advance early stage, high-potential, basic scientific research.

### Vision

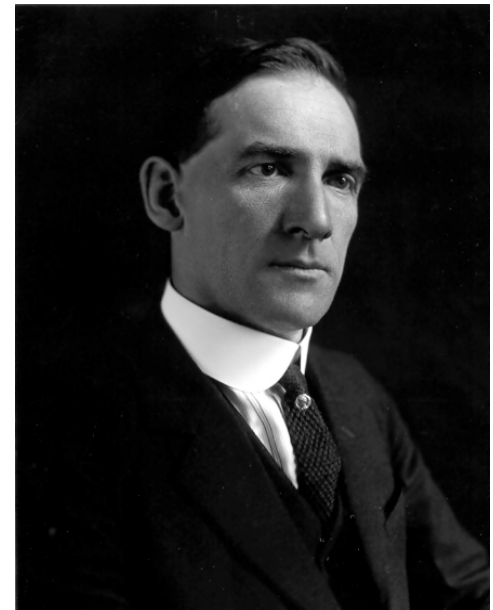
RCSA provides catalytic funding for research and sponsors conferences to support:

- Early career faculty
- Innovative ideas for basic research
- Integration of research and science teaching
- Interdisciplinary research
- Building the academic leadership of the future

Established 1912  
by Frederick Gardner Cottrell  
**106 Years**

Operates with private  
endowment

Funds research projects  
primarily from Chemistry,  
Physics & Astronomy





100<sup>th</sup> Anniversary Party at the Smithsonian

# RCSA has an Amazing History

- Supported over 18,000 scientists

- 41 Nobel Laureates including

Earnest Lawrence

Robert Hofstadter

I.I. Rabi

Joseph Taylor

Percy Bridgeman

Frederick Reines

Felix Bloch

Robert Richardson

Edward Percell

Carl Wieman

Donna Strickland (CS 2000)

# Two Flagship Programs

(both focus on early career faculty)

- SCIALOG



- Cottrell Scholar



# Scialog (Science & Dialog)

- Holds annual workshops on important interdisciplinary areas of research
- Builds networks of researchers across disciplines
- Seeds new collaborative teams to pursue highly innovative “blue sky” projects
- Selection as a Scialog Fellow is by invitation
- Many participants are Cottrell Scholars

# Interdisciplinary Scialog Topics

- Solar Energy Conversion
  - chemistry/engineering/materials
- Molecules Come to Life
  - physics/biology
- Time Domain Astrophysics
  - astrophysics/astronomy/data science
- Advanced Energy Storage
  - chemistry/engineering/materials
- Chemical Machinery of the Cell
  - chemistry/biology



# Cottrell Scholar Award

- 24 outstanding young scientists join the ranks each year (16 R1 + 8 PUI)
- Support innovative/transformational research
- Develop early career faculty committed to outstanding research & teaching
- Build/sustain a community of teacher-scholars – the Cottrell Scholars Collaborative
- Promote a culture of excellence in academic science research, education & leadership

Teacher/Scholar Model

# Your Institution has Invested in You

## Resources

- ◇ Startup Package
- ◇ Reduced Loads
- ◇ Grant Matching
- ◇ Travel Support
- ◇ Equipment Funds
- ◇ Student stipends
- ◇ Pre-tenure Sabbatical

## Expectations

- ◇ 2 or more proposals yr 1
- ◇ Set up research yr 1
- ◇ Involve students yr 1
- ◇ Revise proposals yr 2
- ◇ Present results yr 2 & on
- ◇ Publish results yr 2 & on
- ◇ Renew grants yr 3 & on
- ◇ Great teaching yr 1 & on
- ◇ Service yr 1 or 2 & on
- ◇ Fly over tenure bar yr 6

# Big Picture Expectations

Establish & maintain a productive, exciting, well-funded research program that involves students & flourishes for decades while simultaneously being a great teacher!

## Strategy:

Integrate research & teaching to succeed

This is what the Cottrell Scholar program is looking for

# How do you select a core idea to build a research proposal around ?

- It should move the field forward
- It should be something that excites you

# Reviewers Look For:

- Significance
- Originality
- Feasibility

Ask Yourself This:

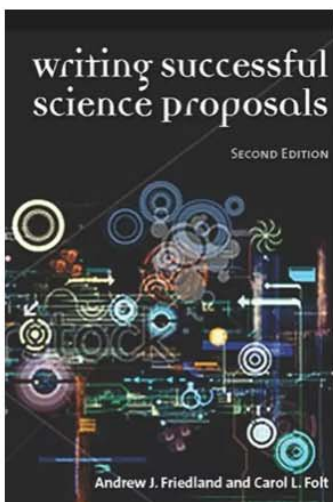
What would the reaction of the best people in the field be to your idea ?

# Statement of the Problem & Scientific Significance

- Put your science in context
- Show knowledge of the field with complete up-to-date references
- Include a clearly stated hypothesis or key idea
- Make a compelling case for significance and originality

# Plan of Procedure

- Be specific! Provide details!
- Address feasibility issues and include alternative routes
- Quantitatively estimate expected improvement compared to previous work
- Show long-term goals and sustainability
- Make the case your research program will attract future funding
- Show how your research program involves students
- Have a realistic scope & timeline.



## Writing Successful Science Proposals, Second Edition

by [Andrew Friedland](#) and Carol L Folt | Jun 9, 2009

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**Kindle**

\$9<sup>99</sup>

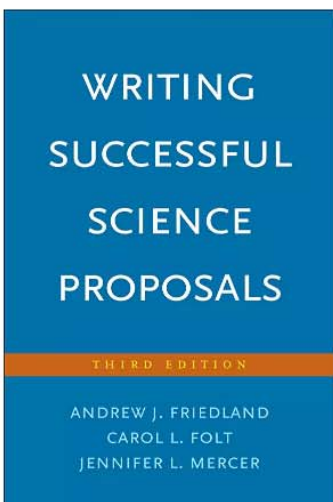
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Also at





# Richard's “3 Most Important Things to Do before Writing a Proposal”

- Read the guidelines & FAQ
- Read the guidelines & FAQ
- Read the guidelines & FAQ

Then Talk with a Program Officer

[www.rescorp.org](http://www.rescorp.org)



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