# How to win your proposal on page 1 (importance of focus and brevity)

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# Background

- **Mike Cronan, PE** (Texas 063512, inactive) has 23 years of experience developing and writing successful team proposals at Texas A&M University and 10 years as a grant writing consultant.

- He was named a **Texas A&M University System Regents Fellow** (2001-2010) for developing and writing A&M System-wide grants funded at over $100 million by NSF and other funding agencies.

- He developed and directed two research development and grant writing offices, one for Texas A&M's VPR and the other for the Texas A&M Engineering Experiment Station (15 research divisions state-wide), including the Texas A&M College of Engineering.

- He has undergraduate degrees in Civil Engineering (University of Michigan and Political Science (Michigan State University) and an MFA in English (University California-Irvine).

# Your goal is to intrigue reviewers on page 1

# *Importance of mastering abbreviated narratives*

- *If I had had more time I would have written you a shorter letter*, Mark Twain
- Some common *abbreviated* narrative gates--
  - Letter of intent
  - White paper
  - Concept paper
  - Project abstract
  - Project summary
  - Preliminary proposal
  - **Introduction to research narrative (1 – 1.5 pgs)**

# *How to lose your proposal on page 1*

- Not fully responsive to the funding solicitation guidelines,

- Don't understand agency culture and mission, e.g., basic or applied research, hypothesis driven research, investigative research, applications, technology development, etc.

- ***DON'T KNOW YOUR AUDIENCE!***

- Ignore review criteria (not writing to reviewers)

- Ignore documents referenced in solicitation, e.g., narrative structure USDA/NIFA

# *How to <u>lose</u> your proposal on page 1*

- Poorly written
- Poorly organized research narrative
- Solicitation not used as narrative template
- Overly generalized narrative lacking specifics and details

# ***How to <u>win</u> your proposal on page 1***
# ***Answer these questions on page 1***

- What you will do
- Why you will do it
- How you will do it (beware too much what and not enough how)
- Why your research is significant to agency mission and field, i.e., not merely incremental
- Your capacity to do it (preliminary data or prior results, publications, patents, etc.)

# *Page 1 of Elon Musk's Proposal to DOE*

- What you will do?
  - We will development an electric car that will capitalize on our capacity for advancing and integrating cutting edge technology development in batteries, robotic manufacturing, and artificial intelligence. Our integration of these three new technologies will be transformative in the EV market globally...

- Why you will do it
  - EVs reduce emissions that contribute to climate change and smog, improve public health and reduce ecological damage...

# *Page 1 of Elon Musk's Proposal to DOE*

- How you will do it
- Why your research is significant to agency mission and field, i.e., not merely incremental
- Your capacity to do it (preliminary data or prior results, publications, patents, etc.)

# *How to <u>win</u> your proposal on page 1*

- Your rationale, approach, and research plan
- Your hypothesis
- Your research plan and approach
- Goals, objectives and outcomes (goals and objectives are not interchangeable)
- How does your research advance the mission priorities of funding agency
- How does your research advance the state of the art in the field
- Where does your research fit in the context of cutting edge research today

# Can you answer these key questions in your narrative introduction?

- How does your research advance the <u>mission priorities</u> of the funding agency?

  - **You must understand the agency's mission and culture to answer this question**.

- How does your research advance the <u>current</u> state of the art in the field?

- Where does your research <u>fit in the context</u> of the cutting edge research being done in the field today?

- How does your research <u>impact stakeholders</u>?

# Example proposal introduction

- **1. Overview and Significance of Proposed Project**
- Despite all of the promise that composites containing nanoparticles such as carbon nanotubes hold, lack of microstructural control during their processing remains a significant hurdle to their widespread use.
- The ultimate **goal** of this project is to precisely tailor the microstructure of high aspect ratio nanoparticles in both liquid suspensions and solid polymer composites through the use of stimuli-responsive, water-soluble polymers to control the extent to which the nanoparticles are stabilized and dispersed.

# Example proposal introduction

- We **hypothesize** that polymer–particle interactions can be weakened or strengthened by increasing or reducing polymer viscosity through the adjustment of an external stimulus (e.g., pH, temperature, or light). The stimulus will modify the degree of ionization and/or the shape of a given polymer, which will, in turn, alter the degree of non-covalent interaction between the nanoparticles and the polymer, as shown in Figure 1.

- In general, stronger polymer–nanoparticle interactions should result in a better dispersed microstructure; weaker interactions will generate more bundled nanotubes or nanowires, resulting in a different set of properties. The heavily aggregated and fully exfoliated (dispersed) states shown in Figure 1 are the microstructural extremes. We expect that intermediate microstructures will also be possible with the appropriate choice of polymer and stimulus.

# Example proposal introduction

- In addition to the novelty of using stimuli-responsive polymers to control nanoparticle organization, **there are two important benefits to this approach**. By focusing on an aqueous environment and water-soluble polymers, this work promotes the use of environmentally benign materials. Furthermore, polymer–particle interactions are non-covalent, allowing the intrinsic properties of the particles to be preserved.

- Our overarching **research objective** is to determine the range and sensitivity of microstructural control that can be achieved using stimuli-responsive polymers. The **questions** motivating this research are: To what degree can we tune polymer–nanoparticle interactions through non-covalent means? What are the effects of the interactions on the final composite microstructure and properties? How can we use our findings to engineer polymer structures by optimizing microstructural control of these nanoparticles? Three model nanoparticles and three classes of stimuli-responsive polymers will be evaluated.

# Example proposal introduction

- To answer these questions, our **project objectives** are to:
- **understand** how polymer conformation influences nanoparticle dispersion and microstructure;
- **relate** nanoparticle microstructure to electrical, mechanical, and thermal behavior of nanocomposites;
- **determine** extent of conformational change needed to influence the range and sensitivity of nanoparticle tailoring; and
- **understand** effect of nanoparticle chemistry on the ability of SRPs to control microstructure.
- **The significance of our approach** is that *materials could be engineered with precisely tailored performance by tuning the microstructure of the particles during manufacture*.

# Know Your Audience
## Write for Reviewers & Program Officers
### *You must intrigue the reviewers!!*