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MTSU Clean Energy Initiative Project Funding Request

There are five (5) sections of the request to complete before submitting. See <http://www.mtsu.edu/sga/cleanenergy.shtml> for funding guidelines. Save completed form and email to cee@mtsu.edu or mail to MTSU Box 57.

1. General Information			
Name of Person Submitting Request	Scott T. Handy		
Department/Office	Chemistry	Phone # (Office)	904-8114
MTSU Box #	68	Phone # (Cell)	217-3271
E-mail	shandy@mtsu.edu	Submittal Date	

2. Project Categories (Select One)			
Select the category that best describes the project.			
<input type="checkbox"/>	Energy Conservation/Efficiency	<input type="checkbox"/>	Sustainable Design
<input type="checkbox"/>	Alternative Fuels	<input type="checkbox"/>	Other
<input checked="" type="checkbox"/>	Renewable Energy (research)		

3. Project Information	
<p>a. Please provide a brief descriptive title for the project.</p> <p>b. The project cost estimate is the expected cost of the project to be considered by the committee for approval, which may differ from the total project cost in the case of matching funding opportunities. Any funding request is a 'not-to-exceed' amount. Any proposed expenditure above the requested amount will require a resubmission.</p> <p>c. List the source of project cost estimates.</p> <p>d. Provide a brief explanation in response to question regarding previous funding.</p>	
3a. Project Title	New "clickable" polymers for Dye Sensitized Solar Cells
3b. Project Cost Estimate	\$600 for chemicals (more detailed listing available on request)
3c. Source of Estimate	Aldrich Catalog
3d. If previous funding from this source was awarded, explain how this request differs? A different (polymer-based) approach to dye sensitized solar cells. The previous one was a solution-based approach.	

4. Project Description

(Completed in as much detail as possible.)

- a. The scope of the work to be accomplished is a detailed description of project activities.
- b. The benefit statement describes the advantages of the project as relates to the selected project category.
- c. The location of the project includes the name of the building, department, and/or specific location of where the project will be conducted on campus.
- d. List any departments you anticipate to be involved. Were any departments consulted in preparation of this request? Who? A listing may be attached to this form when submitted.
- e. Provide specific information on anticipated student involvement or benefit.
- f. Provide information for anticipated future operating and/or maintenance requirements occurring as a result of the proposed project.
- g. Provide any additional comments or information that may be pertinent to approval of the project funding request.

4a. Scope: Work to be accomplished

My group has recently developed a method that enables the facile preparation of highly conjugated polymers with varying electronic characteristics. These materials have a wide range of potential application, particularly in the areas of organic electronic devices, which includes many sensors and dye-sensitized solar cells. The ease of synthesis from simple starting materials, should render the resulting polymers quite practical in terms of application. At present, we need to demonstrate some more preliminary studies before pursuing larger federal grants (NSF and/or DOE) for further development of this project. That is the goal of this proposal.

4b. Scope: Benefit Statement

Dye-sensitized solar cells have great potential to improve the efficiency and cost-effectiveness of solar energy conversion. Most work in this area has targeted small molecule dyes. Using polymers would improve the processing, stability, and safety characteristics of these dyes, but finding materials that absorb and conduct a current is a considerable challenge. Using our newly developed chemistry, we can access conducting polymers with considerable versatility and at modest expense. This development will open entire new avenues for exploration and implementation.

4. Project Description (continued)

4c. Location of Project (Building, etc.)

Davis Science Building

4d. Participants and Roles

Scott Handy – guidance and troubleshooting of the reactions

MS student – running reactions and helping oversee the undergraduate researcher

One undergraduate – running the reactions and making and characterizing the polymers

4e. Student participation and/or student benefit

The students (MS and undergraduate) will be conducting the actual research and will be learning how to design and characterize the organic products. They will be learning valuable chemistry and research skills and getting hands-on experience.

4f. Future Operating and/or Maintenance Requirements

none

4g. Additional Comments or Information Pertinent to the Proposed Project

This research will serve as the preliminary data for a full NSF or DOE proposal.

5. Project Performance Information

Provide information if applicable.

- a. Provide information on estimated annual energy savings stated in units such as kW, kWh, Btu, gallons, etc.
- b. Provide information on estimated annual energy cost savings in monetary terms.
- c. Provide information on any annual operating or other cost savings in monetary terms. Be specific.
- d. Provide information about any matching or supplementary funding opportunities that are available. Identify all sources and explain.

5a. Estimated Annual Energy Savings (Estimated in kW, kWh, Btu, etc.)

NA

5b. Annual Energy COST Savings (\$)

NA

5c. Annual Operating or Other Cost Savings. Specify. (\$)

NA

5d. Matching or Supplementary Funding (Identify and Explain)

NA