

PMC-EF2a

(20102)

**U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION**



RECIPIENT: Stanford University

STATE: CA

PROJECT TITLE : Solar upconversion with plasmon-enhanced bimolecular complexes

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000387	DE-EE0005331	GFO-0005331-001	0

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

B3.6 Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

Rational for determination:

DOE is proposing to provide federal funding to Stanford University to develop an efficient upconverting material for commercial photovoltaic (PV) solar cells. The upconverting material converts lower energy photons, normally transmitted by solar cells, into higher energy photons that can be absorbed by the cell. DOE funding would be used to support the salary of the Principle Investigator (PI) as well as graduate student tuition and salary.

All work would be completed at either Stanford University (496 Lomita Mall, Stanford, California 94305) or at the Bosch Research and Technology Center (4005 Miranda Avenue, Palo Alto, California 94304). Both facilities have completed an R&D questionnaire addressing the protocols in place regarding laboratory safety, risk management, chemical handling and waste disposal.

The proposed project would entail the use, storage and inventory of a variety of purified chemicals for the synthesis of upconverting materials. All laboratory personnel have undergone proper safety and environmental training to learn appropriate handling and storage techniques. All chemicals will be stored in accordance with Stanford Environmental, Health and Safety (EHS) policy, in secondary containers, and grouped according to chemical compatibility. All chemicals will be entered into the main Stanford chemical inventory, accessible via the web. Small amounts of hazardous chemical waste will be generated during the course of the proposed project. The materials synthesis experiments will initially be performed on a very small scale to minimize waste generation. All waste will be temporarily stored in compatible containers (within secondary containers), and will be periodically removed by Stanford EHS staff.

Based on this information, DOE has determined the work outlined is consistent with activities identified in Categorical Exclusion B3.6 (indoor bench-scale research and conventional laboratory operations).

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

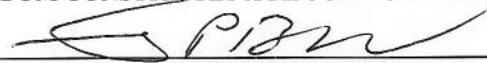
If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

Cristina Tyler 10.25.2011

DOE Funding: \$1,380,470
Total Project Cost: \$1,500,000

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:  Date: 10/26/11
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____
Field Office Manager

Based on the information, DOE has determined that the work outlined is consistent with activities identified in Categorical Exclusion B3.2 (robot research-scale research and conventional laboratory operations).

Chemicals will be generated during the course of the proposed project. The material synthesis experiments will initially be performed on a very small scale to minimize waste generation. All waste will be temporarily stored in compatible containers (with secondary containment), and will be periodically removed by Stanford EMS staff. Chemicals will be collected into the main Stanford chemical inventory, according to the web 0.0111 amount of Health and Safety (EHS) policy, in secondary containers, and grouped according to chemical compatibility. All appropriate handling and storage techniques. All chemicals will be stored in accordance with Stanford Environmental Management. All laboratory personnel have undergone proper safety and environmental training to learn the proposed project would entail the use, storage and inventory of a variety of purified chemicals for the synthesis of

chemical handling and waste disposal.

Completed on R&D questions regarding the protocol in place regarding laboratory safety, risk management, Stanford Research and Technology Center (4000 Minnie Avenue, Palo Alto, California 94304). Both bottles have All work would be completed at either Stanford University (480 Lurie Hall, Stanford, California 94305) or at the

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commercial photovoltaic (PV) solar cells. The accounting material covers lower energy photovoltaic, normally DOE is proposing to provide federal funding to Stanford University to develop an efficient upconverting material for

National Science Foundation

NEPA PROVISION

DOE has made a final NEPA determination for the work.

from the following language in the work:

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Form to Applicant