

U.S. DEPARTMENT OF ENERGY

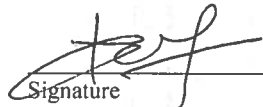
FIELD WORK PROPOSAL

1. WORK PROPOSAL NO.: JLAB-HEP-02	2. REVISION NO.:	3. DATE PREPARED: April 2016
4. WORK PROPOSAL TITLE: Dislocation Substructures on the Functional Properties of Niobium for SRF Cavities, focusing on microstructural, microchemical, and electromagnetic characteristic for Florida State University		5. BUDGET AND REPORTING CODE: KA2601020
6. WORK PROPOSAL TERM: Begin <u>6/1/16</u> End <u>5/31/19</u>		
7. HEADQUARTERS OFFICE PROGRAM MANAGER: Eric Colby, (301) 903-5475 Eric.Colby@science.doe.gov	8. HEADQUARTERS ORGANIZATION: Office of Science	
9. DOE FIELD ELEMENT WORK PROPOSAL REVIEWER: Joseph Arango, (757) 269-5094 arango@jlab.org	10. DOE FIELD ELEMENT: Thomas Jefferson Site Office	
11. CONTRACT WORK PROPOSAL MANAGER: Pashupati Dhakal, (757) 269-7470 dhakal@jlab.org	12. CONTRACTOR NAME: Jefferson Science Associates, LLC, Thomas Jefferson National Accelerator Facility (Jefferson Lab)	

13. Proposal Description

Funding is being requested pursuant to a proposal that was submitted and reviewed through the Portfolio Analysis and Management System (PAMS). PAMS Proposal ID: 222686.

Superconducting cavities are the integral part of many energy-efficient particle accelerators around the world. The current material of choice for superconducting cavities is niobium, which is the material with the highest transition temperature among pure metals. The performance of SRF cavities are influenced by the fabrication and processing steps. We plan to study the microstructural, microchemical and electromagnetic properties of Nb that are processed similar to the cavity processing steps to identify and mitigate the limiting factors to improve the performance of SRF cavities.

14. CONTRACTOR WORK PROPOSAL MANAGER <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="text-align: center;">  Signature </div> <div style="text-align: center;"> <u>4-21-2016</u> Date </div> </div>	15. OPERATIONS OFFICE REVIEW OFFICIAL <div style="display: flex; justify-content: space-between; align-items: flex-end;"> <div style="text-align: center;"> _____ Signature </div> <div style="text-align: center;"> _____ Date </div> </div>
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16. DETAIL ATTACHMENTS

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|--------------------------------|--|--|
| _____ a. Facility Requirements | _____ f. Technical Progress | _____ k. Deliverables |
| _____ b. Publications | _____ g. Future Accomplishments | _____ l. Performance measures/expectations |
| _____ c. Purpose | _____ h. Relationships to Other Projects | _____ m. ES&H Considerations |
| _____ d. Background | _____ i. NEPA Projects | _____ n. Human/Animal Subjects |
| _____ e. Approach | _____ j. Milestones | _____ o. Other (Specify) |

WORK PACKAGE REQUIREMENTS FOR OPERATING/EQUIPMENT OBLIGATIONS AND COSTS								
CONTRACTOR NAME: Jefferson Science Associates, LLC. Thomas Jefferson National Accelerator Facility (Jefferson Lab)			WORK PROPOSAL #: JLAB-HEP-02		REV. #:		DATE PREPARED: April 2016	
	FY2015 Allocated	FY2016 Target	FY2017 Request	FY2017 Authorized	FY2018 Request	FY2019 Request	FY2020 Request	FY2021 Request
17. STAFFING (STAFF YEARS)								
a. SCIENTIFIC		0.1	0.1		0.1			
b. OTHER DIRECT		0.0	0.0		0.0			
c. TOTAL DIRECT		<u>0.1</u>	<u>0.1</u>		<u>0.1</u>			
18. OPERATING EXPENSE (in thousands)								
a. TOTAL OBLIGATIONS (B/A)		25	25		25			
b. TOTAL COSTS (B/O)		25	25		25			
19. EQUIPMENT (in thousands)								
a. EQUIP OBLIGATIONS (B/A)								
b. EQUIPMENT COSTS (B/O)								
20. MILESTONE SCHEDULE (Tasks)			<u>Dates</u>		<u>Proposed \$</u>		<u>Authorized \$</u>	
21. REPORTING REQUIREMENTS (Description):								