



Jefferson Science Associates, LLC

Thomas Jefferson National Accelerator Facility

JSA Initiatives Fund Proposal Summary Sheet

Proposal title: <u>The 8th International Workshop on the Physics of Excited Nucleons</u>	
Total funds requested \$ 12,000	Award Amount: \$5,000
Total leveraged support / Matching funds \$5,000	
<input checked="" type="checkbox"/> New proposal	<input type="checkbox"/> Renewal
If renewal, prior year(s) and award amount(s) _____	
Leveraged support / matching resources: Identify the source and amount of support. For in-kind support, provide estimate of value. Your Identification of the authorized representative who has committed institutional support for your proposal represents the acknowledgement of that individual. No signature is required. Add additional pages if necessary	
(1) Name of institution	<u>Jefferson Lab</u>
Amount / estimate of support	<u>12,000</u>
Authorized representative	<u>L. Cardman</u>
Email / phone number	<u>cardman@jlab.org</u>
(2) Name of institution	_____
Amount / estimate of support	_____
Authorized representative	_____
Email / phone number	_____
Principal Investigator (PI)	<u>Volker Burkert</u>
Mailing Address	<u>Jefferson Lab</u> <u>12000 Jefferson Avenue</u> <u>Newport News, VA 2600</u>
Email / phone number	<u>burkert@jlab.org / (757) 269-7540</u>
Co-PI	<u>David Richards, dgr@jlab.org</u>
Institutional affiliation	<u>Jefferson Lab</u>
Check one category: If PI is a Lab employee, your Identification of the appropriate Associate Director below represents the acknowledgement of that AD with your submittal of proposal. No signature is required.	
<input checked="" type="checkbox"/> JLab employee	Associate director (email / phone) <u>L. Cardman, cardman@jlab.org,</u>
<input type="checkbox"/> JLab user	University affiliation _____
<input type="checkbox"/> Other	Institutional affiliation _____
Executive summary including the projected begin/end dates. To support the participation of students and key researchers at the 8 th International Workshop on the Physics of Excited Nucleons (NStar2011), to be held at Jefferson Laboratory, May 17-20, 2011. In addition, this request will facilitate the publication of proceedings to ensure the long-term impact of the workshop, and provide refreshments for participants outside those allowed by the DOE.	
Synopsis of scientific, educational, technical, and/or business merits, and alignment with and significance to Lab's current programs. Workshop is part of an international series, beginning in 2000 at Jefferson Laboratory, focused on a core program of the laboratory. The study of the intrinsic structure of nucleons in the domain of strong QCD requires the study of its excitation spectrum as well as of their transition form factors. The experimental effort, together with the Excited Baryon Analysis Center and calculations in lattice QCD, form comprehensive strategy to understand excitations with electromagnetic probes, and determination of transition form factors is approved experiment of 12 GeV upgrade. Funding will facilitate participation of students and key researchers central to the future of the field, and ensure record through printed proceedings.	
Proposed evaluation plan to measure success. If this is a request for renewal of funds, assessment of prior year performance. An international scientific advisory committee of noted scientists in place no later than July 31 2010. A conference web site setup no later than August 30, 2010. The conference program of plenary speakers in place no later than December 31, 2010. Number of participants to exceed 80, with significant international and graduate-student participation. The talks to be available on-line during course of the conference. Proceedings of the workshop to be published in printed book form no later than March 2012.	

Attachment A Technical Proposal – no more than 5 pages please. Up to 5 additional pages of letters of support, or other supporting materials may accompany proposal.
Attachment B Budget Proposal

8th International Workshop on the Physics of Excited Nucleons, NStar2011

We request JSA support of \$12k for “**The 8th International Workshop on the Physics of Excited Nucleons** “ which will be held at Jefferson Lab, May 2011. We expect about 100 attendees from countries worldwide, including Canada, China, France, Germany, Great Britain, Italy, Japan, Korea, Russia, and the United States.

The Jefferson Lab head of the Physics Division, Larry Cardman, and David Richards, the acting head of the Jefferson Lab Theory Center, have indicated their support and anticipate a contribution from JLab of \$5k for partial support.

Purpose:

The JSA support would facilitate the participation of students and key scientists with limited funding, ensure the publication of proceedings, and provide support for refreshment and networking beyond that allowed within the DOE.

Specifically:

- An important goal of this workshop is providing guidance to the future development of the field, and ensuring its vitality. Thus the participation of graduate students, and of representatives of countries with emerging hadronic physics programs, is vital. To facilitate their participation, we will use *\$3k to enable a reduced registration fee for students, and registration waivers for key participants who would otherwise be unable to attend.* We will use a further *\$4K for travel and local support for such participants.*
- To ensure the future utility of the conference, we will produce printed proceedings that will be sent both to the participants and to the libraries at the major laboratories and institutions world wide. We will use *\$3k to cover half the cost of the proceedings*, with the remainder covered by the registration fee and other sources.
- Finally, we will use *\$2k for refreshments*, including costs unallowable within DOE funding, to ensure an active social and networking environment at the workshop.

Program Evaluation Plan

With the aim of providing guidance to the future development of the field, ensuring its vitality, and continuing JLab leadership in the study of nucleon excitations, we will evaluate the program as follows. An international scientific advisory committee of noted scientists in place no later than July 31 2010. A conference web site setup no later than August 30, 2010. The conference program of plenary speakers in place no later than December 31, 2010. Number of participants to exceed 80. Number of international participants to exceed 15.

Number of students to exceed 8. The talks be available on-line in course of the conference. Proceedings of the workshop to be published in printed book form no later than March 2012.

Overview:

The excitation spectrum of the nucleon provides a powerful theatre in which to hone our understanding of QCD in the strong-coupling regime. Thus there are major experimental, theoretical and computational efforts that aim to explore both the spectrum and the structure of excited nucleons. Dedicated experimental programs exist to perform accurate measurements of meson photo- and electro-production off the nucleon in order to discover its excitations, and determine its internal structure. QCD-inspired models and Schwinger-Dyson solutions of QCD aim to identify the key degrees of freedom describing the nucleon, while lattice QCD strives to provide first principles calculations of a precision that can confront experiment. The purpose of this workshop is to present the latest results in each of these areas, and explore how together they can build a picture of nucleon excitations and the nature of QCD in the low-energy regime.

Technical Description:

The NSTAR series of workshops was established with the first meeting at Jefferson Lab in 2000. Since then, meetings have been held in Mainz (Germany), Grenoble (France), Pittsburg (USA), Tallahassee (USA), Bonn (Germany), and Beijing (China). Proceedings of all workshops in this series have been published. The broader goal of these meetings has been to review, initiate, and enhance progress in the understanding of the nucleon structure in the domain of strong interaction QCD and confinement, and to initiate the utilization of Lattice QCD and other fundamental theoretical approaches for the interpretation of resonance excitations within the fundamental degrees of freedom of QCD, quarks and gluons.

The “8th International Workshop on the Physics of Excited Nucleons, NStar2011” at Jefferson Lab comes at an exciting time when experimental progress has been vast thanks to the use of the superior beam properties of the JLab electron accelerator, the use of highly polarized electron and photon beams, and the full exploitation of dynamically polarized nucleon target with the CLAS detector.

By the time of the workshop we expect new results from CLAS as well as from other facilities, such as CBELSA, MAMI, and GRAAL that will allow model-independent extraction of meson-production amplitudes directly from the data, which will allow us to more firmly establish (or refute) some of the so-called “missing” resonances which are predicted in the most widely accepted constituent quark models based on broken SU(6) symmetry.

The phenomenological effort at Jefferson Lab’s Excited Baryon Analysis Center (EBAC) will have passed another important milestone with the full dynamically

coupled-channel analysis of multiple final states, and further progress in the description of resonance properties within the Lattice QCD effort. With this workshop, JLab will reaffirm its leadership role in 3 crucial areas, precision experimental data, the most advanced phenomenological approach with EBAC, and the leadership of the JLab Lattice effort.

The **program** will comprise a series of invited plenary talks, together with contributed parallel sessions and a poster session. The topics will include:

- New results on pseudoscalar and vector meson production
- "Complete" experimental determinations of meson-production amplitudes
- Reaction models, PWA and resonance parameters
- Baryon resonance structure and quark models
- Baryon structure at short and long distances
- Dynamical models and coupled channel analysis
- Dyson-Schwinger approaches to baryon resonances
- Baryon resonances in lattice QCD
- Baryon resonances in holographic QCD
- Chiral symmetry and baryon resonances
- Laboratory reports and future projects

Local Organizing Committee

This comprises both experimentalists and theorists:

V. Burkert (Chair) J.-P. Chen, L. Elouadrhiri. M. Jones, T.-S. H. Lee, V. Moiseev, M. Pennington, D. Richards, A. Sandorfi

International Advisory Committee

An important component of the workshop is the International Advisory Committee (IAC) of noted theorists and experimentalists, established to guide the scientific program of the workshop. The 30 members represent 11 countries.

A. D'Angelo (Rome), R. Beck (Bonn), V. Braun (Regensburg), S. Brodsky (SLAC), S. Capstick (Florida State University), H. Gao (Duke University), M. Giannini (Genova), R. Gothe (South Carolina), D. Ireland (Glasgow), F. Klein (Bonn), K.-F. Liu (Kentucky), U.-G. Meissner (Bonn), U. Mosel (Giessen), T. Nakano (Osaka), B. Nefkens (UCLA), E. Oset (Valencia), D.-O. Riska (Academy of Finland), C. Roberts (ANL), B. Saghai (CEA/Saclay), X. Shen (IHEP, Beijing), H. Ströher (FZ Jülich), A. Thomas (Adelaide), L. Tiator (Mainz), S. Wallace (Maryland), R. Workman (George Washington University), S.-N. Yang (Taiwan University), Q. Zhao (IHEP, Beijing), Z. Zhao (Univ. of Science & Technology, China), B. Zou (IHEP, Beijing) .

Conference Agenda

The workshop will have plenary and parallel sessions. We expect to have 28 to 32 plenary and 40 to 60 talks in parallel sessions.

Monday	May 16	Evening	Opening registration/reception
Tuesday	May 17	Morning Afternoon	Plenary Plenary, then parallel sessions
Wednesday	May 18	Morning Afternoon	Plenary Excursion
Thursday	May 19	Morning Afternoon Evening	Plenary Plenary, then parallel sessions Poster session with networking reception/dinner
Friday	May 20	All day	Plenary and/or parallel sessions

There could be up to three parallel sessions at a time, depending on how many abstracts are submitted. The core program will be developed by the LOC in consultation with the IAC, and speakers invited; we will leave openings for any particularly good abstracts that come in. Up to 40 posters could be expected for the poster session. A web site for the workshop has been established:
<http://conferences.jlab.org/nstar2011/index.html>

Proceedings

The proceedings of the workshop will be published in a printed book. Slides of all presentations will be made available online during the conference.



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JSA Initiatives Fund Proposal
Attachment B - Budget Proposal

Item Description		Amount
<p>Equipment. JLab users submitting proposals that include equipment to be used at the Lab must review with the appropriate Lab Associate Director. The provision of the name of the AD below represents the AD's acknowledgement. No signature required.</p>		
Associate Director: _____	_____	
_____	_____	
_____	_____	
	Subtotal Equipment	\$0.00
<p>Travel Support. Provide break-out of estimates for registration fees, lodging and transportation, catering, and facility charges (room rentals, AV equipment; etc.)</p>		
participants	\$3,000.00	
Travel and local support for students and key participants	\$4,000.00	
Catering and refreshment	\$2,000.00	
_____	_____	
	Subtotal Travel	\$9,000.00
<p>Supplies</p>		
_____	_____	
_____	_____	
_____	_____	
	Subtotal Supplies	\$0.00
<p>Consultants/Subcontracts</p>		
Publication of Proceedings	\$3,000.00	
_____	_____	
_____	_____	
	Subtotal Consultants/Subcontracts	\$3,000.00
<p>Other Expenses. Examples include stipends and honoraria, prizes, awards. The Initiatives Fund will not provide for salary and salary-related support and indirect expenses (G&A). The inclusion of these costs in your proposal will be a factor in the evaluation for award. Describe other expenses below.</p>		
_____	_____	
_____	_____	
_____	_____	
	Subtotal Other Expenses	\$0.00
<p>Total Budget Proposal</p>		\$12,000.00

Budget Justification
 Reduced registration of \$100, rather than the regular \$200, for 10 students: \$1000. Fee waiver for 10 participants: \$2000. Travel and local support for 10 participants (10x\$400): \$4,000.