U.S. DEPARTMENT OF ENERGY | Office of Science

The 2013 NP Comparative Research Review

Nuclear Science Advisory Committee Meeting

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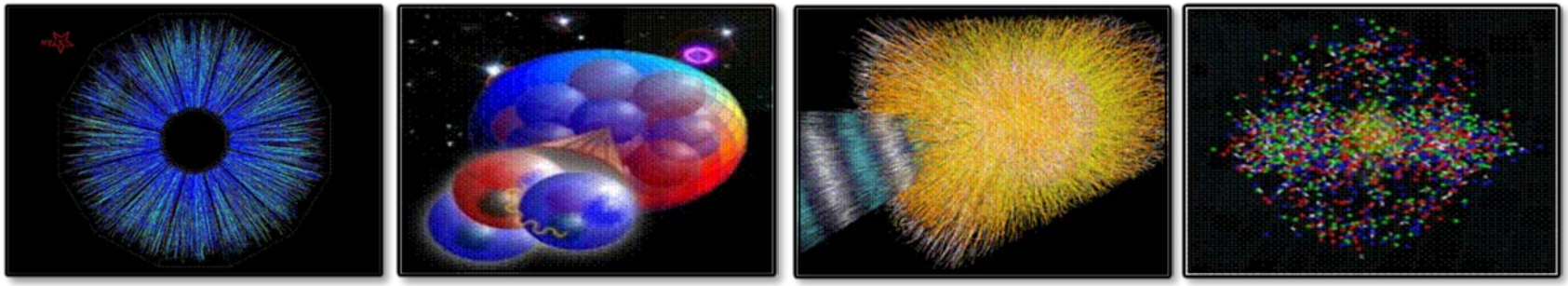
Dr. T. J. Hallman
Associate Director for Nuclear Physics
DOE Office of Science



The 2013 NP Comparative Research Review

- Beginning in mid-2012, in the interest of stewarding a program of nuclear science of the highest quality and impact, NP began to discuss and socialize plans for a comparative review of the research efforts it supports at Laboratories and Universities in the subfields of Heavy Ions, Medium Energy, Nuclear Structure and Nuclear Astrophysics, Nuclear Theory, and Fundamental Symmetries. The last time a similar exercise was undertaken was in 1994 (Dr. Peter, Paul Chair).

- The goal of the comparative panel reviews of scientific research subfields in the NP Physics Research Division was to obtain independent, expert, peer review comparative evaluations of the competitiveness of supported research activities as part of NP's continuing effort to ensure the science it supports is of the highest merit, quality, and impact. The outcome provided input essential to NP's overarching goal of sustaining the most vibrant, high quality portfolio of nuclear science possible within available resources, consistent with program balance and with the strategic vision for US nuclear science developed in partnership with the research community and other stakeholders.

The 2013 NP Comparative Research Review

Panel 1: Nuclear Structure and Nuclear Astrophysics

Peter Butler	Professor, University of Liverpool	Co-Chair
Brian Fulton	Professor, University of York	
Shigeru Kubono	Visiting senior scientist, RIKEN Nishina Center / Professor, University of Tokyo	
Paul Mantica	Professor, Michigan State University	
Gabriel Martinez-Pinedo	Professor, Professor, TU Darmstadt	
Petr Navratil	Professor, TRIUMF	
Karsten Riisager	Professor, Aarhus University	
Berta Rubio	Professor, IFIC-Instituto de Física Corpuscular	
Michael Thoennessen	Professor, Michigan State University	

Panel 2: Heavy Ions

Itzhak Tserruya	Professor, Weizmann Institute	Co-Chair
Joerg Aichelin	Professor, Subatech/University of Nantes	
Federico Antinori	Dr., INFN Padova and CERN	
Jana Bielcikova	Professor, Czech Academy of Sciences	
William Brooks	Professor, Universidad Tėcnica Federico, Santa Maria	
Raphael Granier de Cassagnac	Professor, IN2P3-CNRS	
Juergen Schukraft	Dr., CERN	
Urs Wiedemann	Dr., CERN	

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Panel 3: Medium Energy

Ulrich Wiedner	Professor, Bochum University	Co-Chair
William Brooks	Professor, Universidad Tėcnica Federico, Santa Maria	
Suh-Urk Chung	Dr., CERN, TU/Munich (Germany) and PNU/Busan (Korea)	
Brad Filippone	Professor, California Institute of Technology	
Siegfried Krewald	Professor, Forschungszentrum Jülich	
Elliot Leader	Professor, Imperial College London	
Jean-Marc Richard	Professor, Universite Lyon 1	

Panel 4: Nuclear Theory

Karlheinz Langanke	Professor, GSI Darmstadt	Co-Chair
Peter Braun-Munzinger	Professor, GSI Darmstadt	
Zoltan Fodor	Professor, Universitaet Wuppertal	
Richard Furnstahl	Professor, Ohio State University	
John Timothy Londergan	Professor, Indiana University	
Sandra Padula	Professor, Universidade Estadual Paulista	
Achim Richter	Professor, TU Darmstadt	
Peter Tandy	Professor, Kent State University	

The 2013 NP Comparative Research Review

Panel 5: Neutrons, Neutrinos and Fundamental Symmetries

Frank Calaprice	Professor, Princeton University	Co-Chair
Hartmut Abele	Professor, Technische Universitat Wien	
John Behr	Professor, TRIUMF	
Janet Conrad	Professor, Massachusetts Institute of Technology	
Andre de Gouvea	Professor, Northwestern University	
Karol Lang	Professor, University of Texas	
William Marciano	Dr., Brookhaven National Laboratory	
Michael Romalis	Professor, Princeton University	
Fred Wietfeldt	Professor, Tulane University	

Shoji Nagamiya — Science Advisor, RIKEN / Professor, KEK — Chair

The 2013 NP Comparative Research Review

Dear Panel Member:

Thank you for agreeing to serve on the Fundamental Symmetries subfield review panel of the Office of Nuclear Physics (NP) Comparative Research Review (CRR) chaired by Professor Shoji Nagamiya of RIKEN/KEK in Japan. This review will take place from June 25 through June 28, 2013 at the Gaithersburg Marriott Washingtonian Center, Gaithersburg, Maryland.

The review will focus mainly on a retrospective evaluation of the quality and scientific impact of NP supported research conducted between January 1, 2010 and April 30, 2013, and will cover presentations from approximately 14 university research groups and 7 national laboratory groups.

The effectiveness of the NP program relies on the quality of the research groups that it supports. Scientific excellence should therefore be the overriding consideration in the evaluation of the groups under review. Their creativity, innovation and productivity are also important aspects of this assessment. I would like the panel members to evaluate and compare each research group according to the following criteria, recognizing that the importance of each factor may vary somewhat between groups:

1. Significance and merit of the group's research, in the context of present and emerging research directions within nuclear physics.
2. Future prospects for achieving scientific excellence based on the group's past achievements and the vigor and focus of the group members.
3. Scientific productivity of each group, including any specific strengths and weaknesses.
4. Impact of the group's scientific research effort nationally and internationally.
5. Effectiveness of the group in training the next generation of scientists.
6. Particular strengths of each group, such as scientific leadership, technical leadership, development of innovative concepts or instruments, maintenance of unusual skills, or crucial inputs into collaborative efforts.

The 2013 NP Comparative Research Review Chronology

- Planning 02/2013 – 03/2013: CRR planning at NP
- 04/02/2013: a letter to grantees with CRR announcement and instructions on the briefing package
- 04/19/2013: a CRR charge letter was sent to panel members
- 04/22/2013: a letter was sent to grantees with FAQs, a list of panel members and submission instructions on briefing and presentation packages.
- 04/23/2013: a follow-up letter to panel members.
- 05/13/2013: a letter to grantees with detailed instructions regarding the day of presentation
- 05/2013 – 06/2013: separate phone conference meeting with sub-field panel members before each sub-field CRR panel review
- 05/2013 – 06/2013: sub-field CRR panel reviews

  Nuclear Structure/Nuclear Astrophysics (NSNA): 5/20 – 5/24, 2013 (32 Groups)

  Heavy Ions (HI): 5/28 – 5/31, 2013 (34 Groups)

  Medium Energy (ME): 6/10 – 6/15, 2013 (44 Groups)

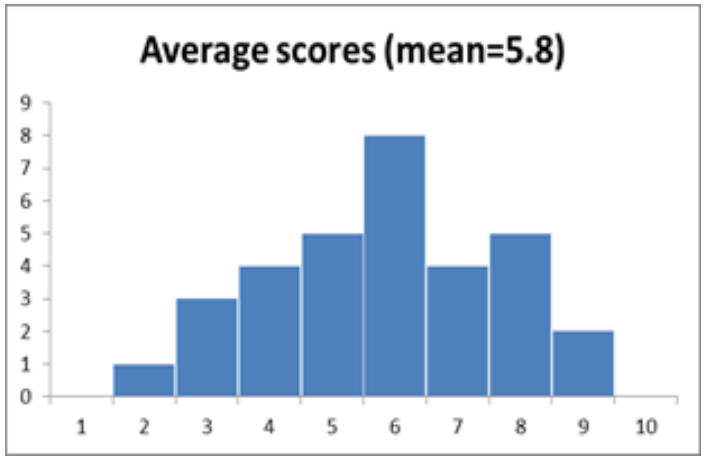
  Nuclear Theory (NT): 6/17 – 6/24, 2013 (62 Groups)

  Fundamental Symmetries (FS): 6/25 – 6/28, 2013 (22 Groups)

The 2013 NP Comparative Research Review Chronology

- 06/17/2013: a separate independent letter sent by PeerNet regarding a Review Survey with submission instructions
- 07/25/2013: First round response letter to each grantee with a group score, subfield average score with subfield score distributions
- 08/06/2013: Thank you letter to the panel members
- 09/2013 Five in-depth discussions (one per portfolio) by subfield Program Managers of review outcomes and proposed actions

Panel members discussed each group collectively but scored each by themselves, anonymously in PeerNet. Adjectival comments provided as well as numerical scores



Sample score distribution from Nuclear Structure and Nuclear Astrophysics:

Scores and comments discussed in detail

- 09/25/2013: Second round letter to each grantee with detailed review comments and 6 criterion scores
- 10/09/2013: Third round letter to each grantee to communicate NP further plans in response to the results of CRR
- 12/11/2013: Fourth round letter to grantees to announce that the final report is posted at the NP website:

http://science.energy.gov/~/media/np/pdf/Comparative%20Review/NP_Comparative_Research_Review_Report.pdf

Further Plans in Response to the 2013 NP Comparative Research Review

Dear Professor:

The purpose of this letter is to communicate the Office of Nuclear Physics (NP) further plans in response to the results of the 2013 Comparative Research Review (CRR), which included a review of your research program.

We have reviewed the comments from the panel members and the numerical scores reported to you earlier. For the majority of grants judged to be among the more competitive research efforts in the portfolio, NP's further actions will comprise discussions between Program Managers and the Principal Investigators (PIs) of grants of the comments from members of the CRR review panel. These discussions will occur in the course of NP's ongoing monitoring of grants. Potential opportunities for strengthening these efforts may also be discussed. NP grant actions such as the processing of continuation awards for the remainder of grant project periods and renewal applications will continue normally, according to the schedule presently in effect.

A different procedure will be followed for grants judged to be in approximately the lowest 25% of the competitiveness range, which is intended to enhance the NP portfolio and create the flexibility needed to invest in new ideas and scientific opportunities. Specifically, the project end dates of awards in this category will be adjusted to allow an early, orderly phase-out at the end of a revised project period. PIs of grants in this category have been notified in advance of this letter.

Concurrently, NP will institute a review for all new proposals received prior to May 1, 2014.The results of this review will provide the basis for decisions regarding which new grants will be funded in FY 2015. Subject to availability of funds, applications received during the period May 1 – Sept. 31, 2014 may not receive consideration until FY 2016. These actions are being undertaken to ensure an NP research portfolio of the highest quality and impact, which is both compelling and vibrant. Your participation in the 2013 Comparative Research Review is greatly appreciated.

PI Feedback on the 2013 NP Comparative Research Review

It was a very well organized process with clear instructions from DOE. It is appreciated that the review took place outside the DOE compound, so we avoided the complicated admission procedures. I had probably expected more questions from the review panel.The only issue, which is not clear to me or most of the people I spoke with, is: how is this review going to be used by DOE.

Sufficient information was provided prior to allow proper planning. Schedule was well maintained. Now, how long will it take to get results ? The last big review required almost two years before informal feed back was provided.

What terrible timing for any university group to have to assemble the required material at the end of the academic year! A little more consideration for the academic year calendar would surely have been appreciated by many.

I was very surprised that the panel included 2 DOE funded competitors for funding from Michigan State University who definitely have an interest favoring research directions going towards their growing facility. The composition of such an important review panel should have been impartial and not skewed towards a particular facility. It looked like MSU can now select the people they want to work with at their facility in the future.

PI Feedback on the 2013 NP Comparative Research Review

The review process was very well organized and was executed well. The uniformity of the requested information was good for the process. The review panel was a very qualified group of experts who appeared to do a good job with pertinent and relevant questions in the short interaction time afforded by the schedule. Irrespective of (personal) outcome, I think this review was very well planned and professionally executed. Future reviews should follow this protocol.

The panel members are well selected and all seem to be knowledgeable about the field. There is little interaction with the panel members after the presentation. The HI program manager is very knowledgeable about the field and the overall research program, and he is doing a very good job. It will be interesting to see how the panel assesses the HI research field.

The review appeared to be well organized and the reviewers were prepared. I hope the results are available in a timely fashion, so we can use them to improve our program.

The process was well-organized and efficient. Some guessing was required to figure out what was intended to be in the report and how to present one's research program orally in such a short time window. As such, this review seems to provide an executive summary of the field without much room for nuance. Most PIs I have talked to did not have a clear sense as to what the ranking of research programs was supposed to accomplish or how this will feed in to the standard peer review of renewals or new grants.

PI Feedback ont he 2013 NP Comparative Research Review

Hello, thanks for asking for feedback. Review and briefing package: From my perspective, the review seemed to be conducted professionally and I felt the briefing package was rather sensible. What the package could not possibly appropriately address was the point in the review panel charge that asks for future future promise . Imagine a PI with multiple funding sources, how do you gauge the future promise of somebody if you only ask for productivity related to the DOE grant? I am sure you misjudge future potential with this attitude - looking at the overall performance of a PI would tell you what this PI could accomplish with $x more funds, for example. But I guess that is not really the purpose ...Location: Gaithersburg, of all places. Honestly, after Germantown, probably the most inconvenient place to reach in the DC area. What happened to Crystal City or a place in walking distance of a Metro Station? Would have saved a lot of time and money and would have reduced frustration on the PI side. Information: The nuts-and-bolts instructions leading up to the review were clear but quite frankly came rather late - please don't forget that the timelines/deadlines largely overlapped with the end of classes at Universities - a very busy time for faculty. Transparency: What I really would appreciate is information on what to expect as result of the review. The PIs put effort into preparing for the review and following the many rules but DOE, in return, has not provided information on what comes next. Will the PIs be informed about the outcome? I for sure hope so! What is the impact on pending or approaching grant renewals? I truly think the PIs deserve this information. Without feedback and transparency of possible decisions/actions based on the review outcomes, this excise should be deemed a costly failure. The panels: Looking at the compositions of all panels, my huge worry is that the panel members are largely from abroad, without much or any experience within the DOE (or US in general) funding system. Funding abroad is handled very, very differently from DOE, believe me, and it is not clear to me that panels with such an abroad-biased composition are the best choice - I do understand the difficulty of avoiding COI, but I was and am still worried about this, largely probably also because at present we are left in the dark on grading schemes, feedback, possible actions and alike.

PI Feedback on the 2013 NP Comparative Research Review

The Basis for Evaluation states: The review panel will not consider the relative priorities of the five different scientific sub-fields within the NP portfolio in this assessment. That is good for experimentalists since e.g. a Heavy-Ion person will not be compared to, say, a medium-energy PI. However, the Theory section seems to be headed for exactly such a comparison. The Theory Panel reviews all theory awards, irrespective which experiments or subfield they relate to. How will the Theory Panel ensure that the relative merits of Nuclear Structure/Astro, Heavy Ions, Medium Energy and Symmetries will _not_ be the deciding factor? Will there be 4 different theory rankings, one for each category? If not, how will DOE make sure there is no appearance of bias against or for a particular subfield just because of the composition of the Theory Panel?

I find the process a waist of our time as well as a waist of DOE's money and time. There is a proposal and project review process already in place . All projects go through an annual review and renewal every 3 years. The information we are asked to submit is already submitted to DOE through annual and closing reports. The money and time spent on this process would have been better spent doing research on our part and for thoroughly reviewing proposals and reports on the DOE side.

The entire process of the comparative review was organized seamlessly. All instructions on the requested information were very clear and the panel review portion proceeded precisely as scheduled. The only concern I have surrounds the likely high level of difficulty for the Committee to be able to perform such a review given the scale, scope, and many different components of the heavy ion program.

PI Feedback on the 2013 NP Comparative Research Review

The panel members were polite and respectful.

Time allowed (20 min.) was too short. Would be very useful to get some feed back from the panel.

It seems like perhaps this could have been done via Skype or so other means -- having everyone travel to DC for a 20 minute talk is difficult. Otherwise, the organization and instructions were clear.

My only comment is to ask whether much of this could have been done electronically, such as via skype. It seems like a lot of research funds being spent for 20 minute presentations.

The whole thing was well organized and professionally done. I had a feeling that in the choice of panelists there were a lot of heavy-ion people. I hope that won't turn out to be a biasing factor. My only complaint was that the initial announcement came rather late: I had almost finalized summer travel plans which would have interfered seriously with the evaluation dates.

Feedback on the 2013 NP Comparative Research Review

I think the requirement of personal presentations is costly in terms of time and money, and also unnecessary. Every year we are required to write a report of our progress; why could not the review panel simply read those reports and make their judgments? I am not sure that this exercise was a good use of our resources.

While I think the spirit of the review is commendable, I think it would have been helpful (and lessened anxiety, rumors, etc.) if a set of possible outcomes from the review had been *published*. For example, when one submits a proposal to a Program Advisory Committee, a grant proposal to DOE/NSF, etc., etc., one knows what the possible outcomes of the review process will be, including how the proposal is ranked, what the report will entail, etc. (e.g., the JLab PAC approves/rejects proposals, and for the approved proposals, assigns a letter grade).In the present situation, as one can of course imagine, there have been many rumors floating around as to what DOE will do with the outcomes of the review. This is problematic for two reasons: (1) as far as most PIs can tell, DOE has not stated *explicitly* what they plan to do with the information collected during the review or how the information will be used; and (2) while the evaluation criteria were published, it was not stated how each group would be ranked/categorized by the committee .I do think, though, that the review was organized quite well, appeared to run smoothly, etc., and I commend DOE NP for organizing such a massive review on a relatively short time scale.

Feedback on the 2013 NP Comparative Research Review

The overall meeting was well organized and I found the panel to be very professional and attentive. The experience was quite a bit better than I had at first feared. It is unfortunate, however, that tight travel money needs to be expended on traveling there for fairly short presentations. I guess this may be an unavoidable cost of the review.

Hi, All in all the review was well organized and the panel members seemed to be knowledgeable. However, there are a few issues that could have been and should be addressed: i) It is not clear what the overall purpose of the review is. Is the goal to cut several grantees completely? What fraction? Will there be further reductions in future grants? ii) Will there be a ranking. If yes, how will the presenters be ranked? How can different P.I.s (and groups) be compared? How will presentations from different P.I.s be normalized ? There was no information at all.iii) The 20 minute time limit is much too strict. If such a severe evaluation is performed based on a 20 minute presentation, the organizers should make sure ,*ahead* of time, that all the equipment works and all talks (slides) will be displayed properly. I my case several slides were not displayed and I felt I was severely disadvantaged. The file I submitted had been tested and displayed on several operating systems at my home institution. Not a single problem had occurred.

PI Feedback on the 2013 NP Comparative Research Review

I had no major issues with the process. It would have been nice to have know the dates I would be required to travel farther in advance -- I believe I found out in late March the range of dates -- but I am sure you did the best you could.

I think more attention should be paid to involvement of undergraduates in research, as it is at this level that many of them decide whether or not to pursue a career in nuclear physics. Some feedback should be transmitted to the reviewee in a timely manner. It's been about 1.5 months already.....

Dear Colleagues, I apologize for not replying to the survey request prior to the July 14 deadline. I hope my comments can still be recorded. I appreciate the effort by the reviewers and the Dept of Energy in conducting this review. To my knowledge, it has been over 20 years since a comparable review was undertaken. I think it would be valuable to have such a review once every decade.
I would also urge you to make the full report public, including all comments about individual grants. This full text is vital for us to assess where we stand within the rankings, and what we can do to improve the impact and productivity of our work.

Future Outlook

As a general conclusion, NP finds that the review was successful and informative and accomplished its goal in terms of providing a comparative assessment of the competitiveness of NP supported research efforts within each subfield.

The main substantive concerns expressed were:

More timely/complete information would be helpful in general

More information on the intended use of the review would be beneficial

This type of review is a major undertaking, requiring very significant effort both by the research community and NP

While this process was a sufficiently major exercise that it will not be repeated on a frequent basis, it was of sufficient value that NP expects it will likely repeat this exercise with some appropriate periodicity.

Beyond the 2014 competitive review, NP plans to return to its standard processes for renewals and continuations through the end of the decade.