

GAUSTEQ
Germany and U.S. Nuclear Theory Exchange Program
for QCD Studies of Hadrons and Nuclei

***** VISITOR REPORT

Please use the following template to prepare your report in plain text format. Short, itemized answers are preferred.

Send your report by E-mail to <gausteq@jlab.org> (as an attachment to preserve formatting).

1) NAME AND HOME INSTITUTION OF TRAVELER (INCL. E-MAIL ADDRESS)

Daniel Phillips
Ohio University
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2) POSITION OF TRAVELER (FACULTY/STAFF/POSTDOC/STUDENT)

Faculty

3) DATES OF TRAVEL

June 19, 2013-July 3, 2013

4) INSTITUTIONS VISITED (LIST PLACES AND TIME SPENT THERE)

Johannes Gutenberg Universität Mainz, June 20-June 24
Universität Bonn, June 25-June 30
Ruhr Universität Bochum, July 1-2

5) SCIENTIFIC CONTACTS AND COLLABORATORS (INDICATE NATURE OF CONTACTS,

LIKE "NEW COLLABORATION," "CONTINUING COLLABORATION,"
"USEFUL DISCUSSION," ETC.)

Vladimir Pascalutsa, have collaborated previously, looking for avenues for future collaboration

Misha Gorshteyn, discussed uncertainty in theory calculations of polarizability effect in muonic deuterium, and potential experiments at MESA to probe those effects.

Evie Downie, discussed new Compton scattering experiments at MAMI
Hans-Werner Hammer, continuing collaboration

Harald Griesshammer & Judith McGovern, continuing collaboration

6) TOPICS DISCUSSED DURING VISIT

- Compton scattering from protons and light nuclei
- Causality bounds on effective-range parameters in relativistic quantum mechanics
- Coulomb dissociation of two-neutron halo nuclei

7) IMPACT ON TRAVELER'S OR HOST'S RESEARCH (INCL. EXPECTED PUBLICATIONS)

This trip allowed me to:

-Continue a collaboration with Hammer (which includes two students, one from Ohio, and one from Bonn). We are presently working to complete a calculation of the spectrum from Coulomb dissociation of Carbon-22 in plane-wave impulse approximation. we also discussed the inclusion of final-state interactions. Progress was made on both aspects. A publication is anticipated.

-Discuss the feasibility and benefits of experiments on Compton scattering from Helium-3 with Downie. This will lead to me working on improved calculations of elastic Compton Helium-3 cross sections if such an experiment moves forward.

-Develop plans with McGovern & Griesshammer for one-two papers on proton Compton scattering that represent outgrowths and continuation of our existing collaboration.

-Think further about polarizability corrections in muonic deuterium. This could be the subject of further research on my part, although that will depend on other activity in this area.

-Give talks promoting and explaining my research in Mainz and Bochum.

8) RELEVANCE TO JEFFERSON LAB OR GSI-FAIR (LIST RELEVANT PROGRAMS)

- Structure of the proton and neutron
 - Nuclei near the limits of stability
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9) SUGGESTIONS/RECOMMENDATIONS FOR PROGRAM ADMINISTRATORS (IF ANY)

10) SUPPORT PROVIDED BY HOSTS (INDICATE TYPE AND EXTENT OF SUPPORT,
NOT EXACT AMOUNTS)

No support provided by hosts. However, Ohio University funds covered accommodation costs not covered by GAUSTEQ.

11) ACKNOWLEDGMENTS

Please acknowledge support from the GAUSTEQ program in any publication benefiting from the results of your visit, by including the following text in your acknowledgments:

"This work was supported partially through GAUSTEQ (Germany and U.S. Nuclear Theory Exchange Program for QCD Studies of Hadrons and Nuclei) under contract number DE-SC0006758."

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