

RENSELAER POLYTECHNIC INSTITUTE
GAERTTNER LINAC CENTER
110 8th St. Troy, NY 12180

RPI
FOREIGN TRIP REPORT
WPEC20170518

DATE: May 25, 2017

SUBJECT: Report of Foreign Travel to Paris France – Yaron Danon, RPI.

TO: Angela Chambers, Manager US DOE NCSP, Office of the Chief of Defense Nuclear Safety, NA-511.

FROM: Yaron Danon, Rensselaer Polytechnic Institute, Troy, NY 12180

MEETING TITLE: 29th Meeting Working Party on International Nuclear Data Evaluation Cooperation

MEETING LOCATION: OECD Paris, France

MEETING DATES: May 15-19, 2017

ATTENDEES ON BEHALF OF NCSP: Yaron Danon, Emily Liu

MEETING BENEFITS TO NCSP:

The meeting occurred during the week of May 15-19, 2017. During that week there were several parallel sessions with interest to NCSP that we attended:

Session	Date	Participant/Presenter
SG-C (high priority list)	5/15	Y. Danon
SG-42 (thermal scattering)	5/16-5/17	Emily Li
SG-40 (CIELO)	5/16-5/17	Y. Danon
SG-44 (covariance data)	5/16	Y. Danon
WPEC	5/18-5/19	Y. Danon

All sessions included topics in which NCSP supported research performed at RPI. Several recent measurements performed at RPI were discussed in different sessions:

- During the subgroup meeting related to the CIELO project (SG-40), RPI measurements for Fe, U-235, U-238, and O were discussed.
- The new RPI thermal scattering measurements were presented and discussed in SG-42.
- A presentation by Danon during the WPEC meeting provided an update on recent US data measurements (as reported to CSEWG).

The meeting is an international collaboration on nuclear data. Y. Danon is the chair of the CSEWG measurements committee and thus an official member of the US delegation to WPEC. Danon presented progress a report on the US ND measurement program including NCSP sponsored work. This venue provides information on the latest ND experiments that are ongoing and planned worldwide and enables interaction with leading researchers from other countries. It also enables collaboration and allows better planning of NCSP related ND experiments. In some cases, this meeting enables access to data obtained elsewhere.

MEETING PURPOSE:

The purpose of WPEC and adjacent subgroup meetings is to foster collaboration and coordination between the different nuclear data evaluation programs around the world. That includes the ENDF, JEFF, JENDL and BROND, CENDL projects and other invited delegates.

SITES VISITED:

OECD Paris, France.

ABSTRACT:

The travelers (Danon and Liu) participated in the WPEC meeting in OECD Paris, France. Danon is an official member of the US delegation representing CSEWG measurement committed. Danon presented a report on US measurement activity during FY16-17 mostly based on reports provided during the November 2016 CSEWG meeting. He is also a member of subgroup C (high priority list), 42 (thermal scattering), 40 (CIELO) and 44 (covariance data), and participated in the subgroup meetings. Dr. Liu presented the RPI measurements and evaluation effort during SG-42 meeting; she attended all SG-42 sessions, due to subgroup schedule conflicts Danon attended only one session of SG-42. Danon visited IRSN on 5/15 and gave a talk on the Nuclear Data capabilities at RPI. This is part of the effort to foster a collaborative evaluation effort between IRSN, NR and RPI.

**Access to the information in this report is limited to those indicated
on the distribution list and to U.S. Government Agencies and their Contractors.**

REPORT OF FOREIGN TRAVEL

**Yaron Danon
OECD Paris, France
May 15-19, 2017**

PURPOSE OF TRAVEL

The purpose of the travel is to participate in the WPEC meeting as an official member of the US delegation and to present a report on US experimental ND work during FY16-17, and to participate in subgroups C, 40, 42 and 44.

REPORT

SG-40 CIELO

The CIELO project is a coordinated evaluation (and measurement) project with the objective to reduce uncertainty in nuclear data of major elements and isotopes that usually appear together and are important to critical systems. This includes H-1, O-16, Fe-56, U-235, U-238 and Pu-239. RPI contributed new measured neutron interaction data for Fe-56 capture and scattering, O-16 total cross section, U-235 capture and fission, and U-238 scattering. These data were incorporated in new evaluations that were also adapted to the upcoming ENDF/B-VIII.0.

The CIELO collaboration is coming to its end data and the viability and future of the subgroup was discussed. One component of the CIELO evaluation is the covariance, which is currently not adjusted to integral data and thus typically provides large uncertainties for critical systems. A new subgroup (SG-44) was created to work on this issue in more detail.

Subgroup C

Danon is a member of Subgroup-C the high priority nuclear data list (HPRL). This list prioritizes needs for nuclear data measurements and evaluation. In Europe, the list is used to justify new measurements. The NDAG priority list is the NCSP equivalent of subgroup C. Recently no new requests for measurements were entered to the list. Currently the US has one member in the subgroup (Danon) while 3 are allowed from each participating evaluation project. This situation creates an opportunity to add members from the user community (such as NCSP) that could enter their nuclear data needs to the list. If an entry in the HPRL list is addressed with a measurement or evaluation, it is at no cost to the initiator.

SG-42 thermal scattering

During SG-42 contributions from the US (with support from NCSP) were given by NCSU and RPI. Interesting measurements of water scattering kernel at high temperature and pressure from ILL France were presented. They concluded that they could not see the effect of pressure on the scattering kernel. It was noted by NR that the new evaluation of water (that was adopted by the new ENDF/B-VIII.0 evaluation) results in a strange behavior of the scattering cross section between 0.01-0.03 eV as a function of temperature. New experimental data is needed to determine if this behavior is correct.

WPEC

A report to WPEC was given on Thursday and included reports on experimental activity in different US laboratories including:

1. Los Alamos National Laboratory
2. Oak Ridge National laboratory
3. Lawrence Berkeley National Laboratory
4. University of Kentucky
5. Rensselaer Polytechnic Institute
6. National Institute of Standards

The information in the US reports is mostly from the presentation given during the CSEWG in November 2016. Reports from each evaluation project were then presented focusing on the latest experimental and evaluation efforts.

Visit to IRSN

On Monday 5/15 Danon visited IRSN during the morning. The visit included a perennation detailing Nuclear Data capabilities at RPI and was followed by a discussion. The discussion was about the best way to collaborate, IRSN is interested in access to experimental data from RPI to use in their evaluations. This includes data measured using support from NCSP and NR. Further discussions between IRSN and NR will follow to decide how best to proceed.

WPEC Meeting participants

Mark CHADWICK	ENDF / SG 40
Yaron DANON	ENDF
Mike DUNN	ENDF / SG 28
Mike HERMAN	ENDF / WPEC Chair
Albert (Skip) KAHLER	ENDF /SG42
Robert JACQMIN	JEFF / SG 27
Arjan PLOMPEN	JEFF / SG C
Tokio FUKAHORI	JENDL / WPEC Chair
Hideo HARADA	JENDL / SG 41
Masayuki IGASHIRA	JENDL
Osamu IWAMOTO	JENDL
Kenji YOKOYAMA	JENDL
Zhigang	GE CENDL
Oleg Grudzevich, Roubstov, Chalk River,	Deputy Director IPPE Canada
Arjan KONING	IAEA
<i>Subgroup coordinators</i>	
Cyrille DE SAINT JEAN	SG 34 / JEFF
Peter Schillebeeckx	SG 36 / JEFF
Robert MILLS	SG 37 / JEFF
Dennis MCNABB	SG 38 / ENDF
Giuseppe PALMIOTTI	SG 39 / ENDF
Gilles NOGUERE	SG 42 / ENDF
<i>Invitees</i>	
Young-Ouk LEE KAERI	
Do Heon KIM KAERI	
Xichao RUAN CENDL (confirmed)	
Haicheng WU CENDL (confirmed)	
<i>Secretariat</i>	
Oscar CABELLOS NEA (confirmed)	

Itinerary

5/07/15 - 5/08/16	Travel from Albany, NY to Paris, France
5/09/16	Subgroup C meeting
5/09/16 - 5/11/16	Subgroup 40 meeting CIELO
5/10/16 - 5/11/16	Subgroup 42 meeting
5/12/16 - 5/13/16	WPEC Meeting in NEA
5/15/15 - 5/15/16	Travel from Paris, France to Albany, NY

DISTRIBUTION

1. Lori Scott (Lorisc0tt@aol.com)
2. Douglas Bowen (bowendg@ornl.gov)
3. Angela Chambersn (Angela.Chambers@mnsa.doe.gov)