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**ORNL
FOREIGN TRIP REPORT
TA 369453**

DATE: March 26, 2015

SUBJECT: Report of Foreign Travel Karlsruhe and Dresden Germany – Luiz C. Leal, Reactor and Nuclear Systems Division

TO: Jerry N. McKamy, Nuclear Criticality Safety Program Manager, National Nuclear Security Administration / NA-511/GTN, 1000 Independence Ave., SW, Washington, DC 20585-1290

FROM: Luiz C. Leal

**MEETING:
TITLE** 1) Meet with researchers at the Karlsruhe Institute of Technology (KIT) and lecture on the ORNL nuclear data activities in support of nuclear criticality safety;
2) Attend the WINS 2014 Workshop on Elastic and Inelastic Neutron Scattering

**MEETING:
LOCATION** 1) Karlsruhe Institute of Technology, Karlsruhe, Germany;
2) Dresden, Germany

**MEETING:
DATES** 1) KIT December 1-2, 1, 2014;
2) WINS2014 December 3-5, 2014

**ATTENDEES:
ON BEHALF
OF NCSP** Luiz Leal

**MEETING:
BENEFIT TO
NCSP** Researchers at the Karlsruhe Institute of Technology (KIT) perform data evaluation work of interest to the US Nuclear Criticality Safety Program. The KIT visit gave the traveler an opportunity to establish a potential collaboration with KIT to accelerate NCSP nuclear data evaluation efforts. Specifically, KIT routinely performs high-energy (i.e., above the resonance region) nuclear data evaluation work, and KIT has interest in nuclear data evaluations that are also of interest to the NCSP. Following the visit to KIT, the traveler participated in the WINS2014 workshop to present new NCSP/ORNL data measurement and evaluation work. During the meeting, Leal presented work accomplishments for a new ⁵⁶Fe evaluation needed to support nuclear criticality safety applications. By presenting the NCSP evaluation work during the WINS2014 workshop, Leal had the opportunity to gain important feedback from the

international community on the performance of the new ^{56}Fe evaluation. In addition, the meeting provided an opportunity for Leal to share and exchange technical information that will improve the ORNL ^{56}Fe evaluation for the NCSP. As a result, participation in the WINS2014 workshop provided important information that will improve the overall quality of the ORNL ^{56}Fe evaluation for the NCSP.

PURPOSE: The purpose of the travel to Germany is to establish a nuclear data evaluation collaboration with the Karlsruhe Institute of Technology (KIT). In addition, the traveler participated in the WINS2014 workshop to present new NCSP nuclear data evaluation work to the international nuclear data community.

**SITES:
VISITED** Karlsruhe Institute of Technology, Karlsruhe and WINS2014 workshop, Dresden, Germany

ABSTRACT: Leal traveled to Germany to visit the Karlsruhe Institute of Technology and participate in the Workshop on Elastic and Inelastic Neutron Scattering (WINS2014) in Dresden.

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on the distribution list and to U.S. Government Agencies and their Contractors.**

REPORT OF FOREIGN TRAVEL

**Luiz C. Leal
Karlsruhe and Dresden, Germany
November 29 to December 06, 2014**

TRIP REPORT

Researchers at KIT perform high-energy nuclear data evaluation for applications that include shielding, fission and fusion reactor applications, etc. During the visit, Leal gave a presentation on the ORNL data evaluation activities in support of the US Nuclear Criticality Safety Program (NCSP). In the past, Leal has worked with KIT on nuclear data evaluation tasks, and Leal has experience working with KIT. An example of the collaboration is the data library generated for the chromium isotopes combining ORNL and KIT evaluations. The time spent at KIT provided an opportunity to discuss new data evaluation needs that are identified in the NCSP Five Year Plan that are of mutual interest to current nuclear data evaluation activities at KIT. There are nuclear data evaluation needs identified in the NCSP Five Year Plan that can benefit from KIT capabilities and planned work activities. For example, structural materials such as tungsten, zirconium, copper, etc. are of interest to KIT. During the meeting, Leal discussed potential collaborative work activities with KIT, and KIT is willing to collaborate with ORNL to develop nuclear data evaluations that are of interest to the NCSP and KIT.

Following the visit to KIT, Leal traveled to Dresden, Germany to participate in the WINS2014 Workshop. The workshop on elastic and inelastic neutron scattering was held at the Helmholtz-Zentrum Dresden-Rossendorf Institute in Dresden. This workshop is a third of a series focusing on experimental and theoretical data activities. The WINS2014 workshop provided an opportunity for experimentalist and evaluators of neutron scattering data from around the world to report on recent scientific developments in nuclear data. Leal gave a presentation titled “R-matrix Evaluation of ^{56}Fe Including Elastic, Inelastic, and Angular Dependent Cross Sections.” The presentation is the result of an evaluation for ^{56}Fe that is being developed for the NCSP. By presenting the NCSP evaluation work during the WINS2014 workshop, Leal had the opportunity to gain important feedback from the international community on the performance of the new ^{56}Fe evaluation. In addition, the meeting provided an opportunity for Leal to share and exchange technical information that will improve the ORNL ^{56}Fe evaluation for the NCSP. As a result, participation in the WINS2014 workshop provided important information that will improve the overall quality of the ORNL ^{56}Fe evaluation for the NCSP.

Itinerary

11/29/14 - 11/30/14	Travel from Knoxville, TN, USA to Karlsruhe, Germany
12/01/14 - 12/02/14	Meet with researchers at KIT
12/02/14 - 12/02/14	Travel from Karlsruhe to Dresden, Germany
12/03/14 - 12/05/14	Attend WINS2014 workshop
12/06/14 - 12/06/14	Travel from Dresden, Germany to Knoxville, USA

DISTRIBUTION

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