

# **2021 Nuclear Data for Reactor Antineutrino Measurements Workshop**

## **Report of Contributions**

Contribution ID: 1

Type: **not specified**

## Welcome/Logistics

*Monday, 21 June 2021 11:00 (10 minutes)*

**Primary author:** Dr ROMANO, CATHERINE (IB3 Global Solutions)

**Presenter:** Dr ROMANO, CATHERINE (IB3 Global Solutions)

**Session Classification:** Plenary Session

Contribution ID: 2

Type: **not specified**

## Nuclear Physics Overview

*Monday, 21 June 2021 11:10 (20 minutes)*

**Primary author:** HALLMAN, Timothy (Department of Energy, Office of Nuclear Physics)

**Presenter:** HALLMAN, Timothy (Department of Energy, Office of Nuclear Physics)

**Session Classification:** Plenary Session

Contribution ID: 3

Type: **not specified**

## **Nuclear Data Program and Antineutrinos**

*Monday, 21 June 2021 11:30 (15 minutes)*

**Primary author:** JANKOWSKI, Keith (DOE Office of Science)

**Presenter:** JANKOWSKI, Keith (DOE Office of Science)

**Session Classification:** Plenary Session

Contribution ID: 4

Type: **not specified**

## **WoNDRAM Motivation and Goals & NDWG**

*Monday, 21 June 2021 12:15 (15 minutes)*

**Primary author:** ROMANO, CATHERINE (IB3 Global Solutions)

**Presenter:** ROMANO, CATHERINE (IB3 Global Solutions)

**Session Classification:** Plenary Session

Contribution ID: 5

Type: **not specified**

## **DNN R&D Perspective**

*Monday, 21 June 2021 11:45 (15 minutes)*

**Primary author:** HORNBACK, Donald

**Presenter:** HORNBACK, Donald

**Session Classification:** Plenary Session

Contribution ID: 7

Type: **not specified**

## **DNN R&D Safeguards Perspective**

*Monday, 21 June 2021 12:00 (15 minutes)*

**Primary author:** RAMOS, Christopher (DOE/NNSA/DNN)

**Presenter:** RAMOS, Christopher (DOE/NNSA/DNN)

**Session Classification:** Plenary Session

Contribution ID: 8

Type: **not specified**

## Q&A

*Monday, 21 June 2021 12:30 (30 minutes)*

**Primary authors:** SONZOGNI, Alejandro (NNDC - BNL); ROMANO, CATHERINE (IB3 Global Solutions)

**Presenters:** SONZOGNI, Alejandro (NNDC - BNL); ROMANO, CATHERINE (IB3 Global Solutions)

**Session Classification:** Plenary Session



Contribution ID: 9

Type: **not specified**

## **Outcome of the 2019 IAEA Technical Meeting**

*Monday, 21 June 2021 14:15 (20 minutes)*

**Primary author:** DIMITRIOU, Paraskevi (International Atomic Energy Agency)

**Presenter:** DIMITRIOU, Paraskevi (International Atomic Energy Agency)

**Session Classification:** Plenary Session

Contribution ID: **10**

Type: **not specified**

## **Nuclear Data Pipeline**

*Monday, 21 June 2021 14:35 (25 minutes)*

**Primary author:** DAVID, Brown (NNDC, Brookhaven National Laboratory)

**Presenter:** DAVID, Brown (NNDC, Brookhaven National Laboratory)

**Session Classification:** Plenary Session

Contribution ID: 11

Type: **not specified**

## Relevant Nuclear Databases

*Monday, 21 June 2021 15:20 (15 minutes)*

**Primary author:** LOREK, Ryan (Brookhaven National Laboratory)

**Presenter:** LOREK, Ryan (Brookhaven National Laboratory)

**Session Classification:** Plenary Session

Contribution ID: 12

Type: **not specified**

## Reactor Antineutrino 101

*Monday, 21 June 2021 13:15 (20 minutes)*

**Primary author:** CARR, Rachel (MIT)

**Presenter:** CARR, Rachel (MIT)

**Session Classification:** Plenary Session

Contribution ID: 13

Type: **not specified**

## History of Reactor Experiments

*Monday, 21 June 2021 13:35 (20 minutes)*

**Primary author:** HUBER, Patrick (Virginia Tech)

**Presenter:** HUBER, Patrick (Virginia Tech)

**Session Classification:** Plenary Session

Contribution ID: 14

Type: **not specified**

## Current/Future Reactor Experiments

*Monday, 21 June 2021 13:55 (20 minutes)*

**Primary author:** OCHOA-RICOUX, J. Pedro (University of California at Irvine)

**Presenter:** OCHOA-RICOUX, J. Pedro (University of California at Irvine)

**Session Classification:** Plenary Session

Contribution ID: 15

Type: **not specified**

## Current Decay Experiments

*Monday, 21 June 2021 15:00 (20 minutes)*

**Primary author:** MCCUTCHAN, Elizabeth (BNL)

**Presenter:** MCCUTCHAN, Elizabeth (BNL)

**Session Classification:** Plenary Session

Contribution ID: 16

Type: **not specified**

## **Discussion and Expectations for Topical Sessions**

*Monday, 21 June 2021 15:35 (25 minutes)*

**Primary author:** ROMANO, CATHERINE (IB3 Global Solutions)

**Presenter:** ROMANO, CATHERINE (IB3 Global Solutions)

**Session Classification:** Plenary Session



Contribution ID: 17

Type: **not specified**

## Introduction

*Thursday, 24 June 2021 11:00 (15 minutes)*

**Primary author:** BOWDEN, Nathaniel (Lawrence Livermore National Laboratory)

**Presenter:** BOWDEN, Nathaniel (Lawrence Livermore National Laboratory)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session

Contribution ID: **18**

Type: **not specified**

## **CEvNS: Signal**

*Thursday, 24 June 2021 11:15 (15 minutes)*

**Primary author:** BARBEAU, Phil (Duke University)

**Presenter:** BARBEAU, Phil (Duke University)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session

Contribution ID: 19

Type: **not specified**

## CEvNS: Background

*Thursday, 24 June 2021 11:30 (15 minutes)*

**Primary author:** SCHOLBERG, Kate (Duke University)

**Presenter:** SCHOLBERG, Kate (Duke University)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session

Contribution ID: **20**

Type: **not specified**

## **IBD: Signal**

*Thursday, 24 June 2021 11:45 (15 minutes)*

**Primary author:** CLASSEN, Timothy (LLNL)

**Presenter:** CLASSEN, Timothy (LLNL)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session

Contribution ID: 21

Type: **not specified**

## **IBD: Background (Above Ground)**

*Thursday, 24 June 2021 12:00 (15 minutes)*

**Primary author:** MENDENHALL, Michael (LLNL)

**Presenter:** MENDENHALL, Michael (LLNL)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session

Contribution ID: 22

Type: **not specified**

## **IBD: Background (Below Ground)**

*Thursday, 24 June 2021 12:15 (15 minutes)*

**Primary author:** BERGEVIN, Marc (LLNL)

**Presenter:** BERGEVIN, Marc (LLNL)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session

Contribution ID: 23

Type: **not specified**

## **Electron Scattering: Signal & Background**

*Thursday, 24 June 2021 12:30 (15 minutes)*

**Primary author:** SMY, Michael (UCI School of Physical Sciences)

**Presenter:** SMY, Michael (UCI School of Physical Sciences)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session

Contribution ID: 24

Type: **not specified**

## Quenching Factors for Organic Scintillators

*Thursday, 24 June 2021 13:00 (15 minutes)*

**Primary author:** LAPLACE, Thibault (University of California Berkeley)

**Presenter:** LAPLACE, Thibault (University of California Berkeley)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session



Contribution ID: 25

Type: **not specified**

## Transport Modelling

*Thursday, 24 June 2021 13:15 (15 minutes)*

**Primary author:** HAGHIGHAT, Alireza (Virginia Tech)

**Presenter:** HAGHIGHAT, Alireza (Virginia Tech)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session

Contribution ID: 26

Type: **not specified**

## Discussion Session

*Thursday, 24 June 2021 13:30 (1h 30m)*

**Primary author:** GOLDBLUM, Bethany (Lawrence Berkeley National Laboratory)

**Presenter:** GOLDBLUM, Bethany (Lawrence Berkeley National Laboratory)

**Session Classification:** Nuclear Data for the Antineutrino Detector Response Session

Contribution ID: 27

Type: **not specified**

## Introduction

*Wednesday, 23 June 2021 11:00 (5 minutes)*

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 28

Type: **not specified**

## **Spectra of Antineutrinos from Nuclear Reactors**

*Wednesday, 23 June 2021 11:05 (15 minutes)*

**Primary author:** HAYES, Anna (Los Alamos National Laboratory)

**Presenter:** HAYES, Anna (Los Alamos National Laboratory)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 29

Type: **not specified**

## **Big Picture: Case Study of Diversion and Limits of Antineutrino Safeguards Technology**

*Wednesday, 23 June 2021 11:20 (15 minutes)*

**Primary author:** ERICKSON, Anna (Georgia Tech)

**Presenter:** ERICKSON, Anna (Georgia Tech)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: **30**

Type: **not specified**

## **Antineutrino Spectrum Predictions: Nuclear Data Impact and Interplay**

*Wednesday, 23 June 2021 11:35 (15 minutes)*

**Primary author:** MATTERA, Andrea (BNL)

**Presenter:** MATTERA, Andrea (BNL)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: **31**

Type: **not specified**

## **Big Picture: High Energy Physics**

*Wednesday, 23 June 2021 11:50 (15 minutes)*

**Primary author:** OCHOA-RICOUX, J. Pedro (University of California at Irvine)

**Presenter:** OCHOA-RICOUX, J. Pedro (University of California at Irvine)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 32

Type: **not specified**

## Direct Source Term Measurement: Existing Data

*Wednesday, 23 June 2021 12:05 (15 minutes)*

**Primary author:** LANGFORD, Thomas (Yale University)

**Presenter:** LANGFORD, Thomas (Yale University)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session



Contribution ID: 33

Type: **not specified**

## Direct Source Term Measurement: Future Data

*Wednesday, 23 June 2021 12:20 (20 minutes)*

**Primary author:** SURUKUCHI, Pranava Teja (Yale University)

**Presenter:** SURUKUCHI, Pranava Teja (Yale University)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 34

Type: **not specified**

## **Direct Source Term Measurement: Non-IBD Reactions**

*Wednesday, 23 June 2021 12:40 (15 minutes)*

**Primary author:** MAHAPATRA, Rupak

**Presenter:** MAHAPATRA, Rupak

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 35

Type: **not specified**

## Recent measurements of fission beta spectra ratios

*Wednesday, 23 June 2021 13:05 (15 minutes)*

**Primary author:** MUMM, P. (NIST)

**Presenter:** MUMM, P. (NIST)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 36

Type: **not specified**

## **Towards Integral Electron Measurements of $^{233,235}\text{U}$ and $^{239,241}\text{Pu}$ at HFIR Decay Station**

*Wednesday, 23 June 2021 13:20 (10 minutes)*

**Primary author:** RYKACZEWSKI, Krzysztof (ORNL Physics Division)

**Presenter:** RYKACZEWSKI, Krzysztof (ORNL Physics Division)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 37

Type: **not specified**

## **Scattering Beamlines and Irradiation Positions at the High Flux Isotope Reactor**

*Wednesday, 23 June 2021 13:30 (10 minutes)*

**Primary author:** CROW, Lowell

**Presenter:** CROW, Lowell

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: **38**

Type: **not specified**

## **Magnetic electron spectrometer for characterising anti-neutrino anomaly**

*Wednesday, 23 June 2021 13:40 (10 minutes)*

**Primary author:** KIBEDI, Tibor (Australian National University)

**Presenter:** KIBEDI, Tibor (Australian National University)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 39

Type: **not specified**

## **Concepts for Integral Electron Measurements of 233,235U and 239,241Pu at HFIR**

*Wednesday, 23 June 2021 13:50 (10 minutes)*

**Primary author:** ALLMOND, Mitch (ORNL)

**Presenter:** ALLMOND, Mitch (ORNL)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: **40**

Type: **not specified**

## Discussion

*Wednesday, 23 June 2021 14:00 (20 minutes)*

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session



Contribution ID: 41

Type: **not specified**

## Measuring Beta Spectra For Forbidden Decays

*Wednesday, 23 June 2021 14:20 (15 minutes)*

**Primary author:** RASCO, Charlie

**Presenter:** RASCO, Charlie

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 42

Type: **not specified**

## Beta Feeding Measurements

*Wednesday, 23 June 2021 14:35 (15 minutes)*

**Primary author:** SAVARD, Guy (Argonne National Laboratory)

**Presenter:** SAVARD, Guy (Argonne National Laboratory)

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 43

Type: **not specified**

## **Software Tools for Modelling Neutrino Source Terms**

*Wednesday, 23 June 2021 14:50 (10 minutes)*

**Primary author:** ZHANG, Xianyi

**Presenter:** ZHANG, Xianyi

**Session Classification:** Nuclear Data for Antineutrino Spectrum Calculations Session

Contribution ID: 44

Type: **not specified**

## Session Overview

*Tuesday, 22 June 2021 11:00 (20 minutes)*

**Presenter:** CONANT, Andrew (Oak Ridge National Laboratory)

**Session Classification:** Nuclear Data for the Reactor Antineutrino Source Term

Contribution ID: 45

Type: **not specified**

## Overview of Fission Yield Evaluations

*Tuesday, 22 June 2021 11:20 (20 minutes)*

**Primary author:** LOVELL, Amy (Los Alamos National Laboratory)

**Presenter:** LOVELL, Amy (Los Alamos National Laboratory)

**Session Classification:** Nuclear Data for the Reactor Antineutrino Source Term

Contribution ID: 46

Type: **not specified**

## **Non-Equilibrium Corrections and MURE Code**

*Tuesday, 22 June 2021 11:40 (20 minutes)*

**Primary author:** FALLOT, Muriel (Subatech)

**Presenter:** FALLOT, Muriel (Subatech)

**Session Classification:** Nuclear Data for the Reactor Antineutrino Source Term

Contribution ID: 47

Type: **not specified**

## **Antineutrino Data: Reactor Operational Data Uncertainties**

*Tuesday, 22 June 2021 12:00 (20 minutes)*

**Primary author:** ERICKSON, Anna (Georgia Tech)

**Presenter:** ERICKSON, Anna (Georgia Tech)

**Session Classification:** Nuclear Data for the Reactor Antineutrino Source Term

Contribution ID: 48

Type: **not specified**

## **SCALE Sensitivity to Fission Products**

*Tuesday, 22 June 2021 12:20 (20 minutes)*

**Primary author:** SKUTNIK, Steve (Oak Ridge National Laboratory)

**Presenter:** SKUTNIK, Steve (Oak Ridge National Laboratory)

**Session Classification:** Nuclear Data for the Reactor Antineutrino Source Term



Contribution ID: 49

Type: **not specified**

## **Modeling of Neutrino Production and Spectra From a Magnox Reactor**

*Tuesday, 22 June 2021 12:40 (20 minutes)*

**Primary author:** MILLS, Robert (UK National Nuclear Laboratory)

**Presenter:** MILLS, Robert (UK National Nuclear Laboratory)

**Session Classification:** Nuclear Data for the Reactor Antineutrino Source Term

Contribution ID: 50

Type: **not specified**

## Discussion

*Tuesday, 22 June 2021 13:35 (1h 25m)*

**Session Classification:** Nuclear Data for the Reactor Antineutrino Source Term

Contribution ID: 51

Type: **not specified**

## **Advanced Reactor Instrumentation at NRIC**

*Tuesday, 22 June 2021 13:15 (20 minutes)*

**Primary author:** SMITH, Nick (Idaho National Laboratory)

**Presenter:** SMITH, Nick (Idaho National Laboratory)

**Session Classification:** Nuclear Data for the Reactor Antineutrino Source Term