

# **Ed Waller, PhD**

**Professor, Faculty of Energy Systems and Nuclear Science at University of Ontario Institute of Technology**

Oshawa, ON, CA

Global counterterrorism and health physics expert protects nuclear energy workers, population and environment from overexposure to radiation

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## **Description**

Counterterrorism expert Ed Waller, PhD, has dedicated his career to protecting the safety and security of Canadians by innovating ways to reduce the threat of radiation exposure from nuclear disaster. One of the world's leading radiation experts, he is a Professor in the Faculty of Energy Systems and Nuclear Science, and has been a Natural Sciences and Engineering and Research Council of Canada (NSERC) and University Network of Excellence in Nuclear Engineering (UNENE ) Industrial Research Chair in Health Physics and Environmental Safety since 2008.

His research focuses on nuclear safety, security and safeguards to secure nuclear radiation sources including counterterrorism measures, emergency response and environmental effects associated with nuclear power plants in Canada. In the area of health physics, Dr. Waller conducts risk-based analyses of radiation exposure and investigates ways to ensure exposure is as low as reasonably achievable. Environmentally, his research also explores the impact of low doses of radiation on non-human species.

A prominent five-year delegate with the NATO working group investigating radiation bioeffects and countermeasures, Dr. Waller has been researching radiological dispersal devices and their effects for more than 15 years. He developed a novel Radiation Triage Mask to rapidly identify and assist with treatment strategies for those who have been exposed internally to radioactive isotopes generated by dirty bombs. The patented RTM determines the type of exposure and amount inhaled, providing first responders the ability to quickly establish a course of treatment and save lives.

Globally, Dr. Waller is part of a research team to design a novel sensor for an improved landmine detection system, an invention that is currently being used in countries where landmines are prevalent. Notably, he is the first Canadian academia delegate appointed to United Nations Scientific Committee on the Effects of Atomic Radiation, and works closely with the International Atomic Energy Agency (IAEA).

He joined UOIT in 2003 as Associate Professor, was appointed Professor in 2009 and named Associate Dean of Graduate Studies in 2011. In 2015, Dr. Waller served as Dean of Graduate Studies, then Dean of the Faculty. Previously, he spent 15 years with Science Applications International Corporation dealing with threat assessment, health physics and applications of radiation.

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## **Industry Expertise**

Nuclear, Research, Education/Learning, Public Safety, Security, Environmental Services

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## **Topics**

Applied Health Physics, Environmental Impact of Radionuclides, Internal and External Dosimetry, Non-Intrusive Investigation, Nuclear Safety and Security, Radiation and Threat Detection, Emergency Response, CBRN Counterterrorism

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## **Affiliations**

Professional Engineers Ontario, American Nuclear Society, Canadian Nuclear Society, American Board of Industrial Hygiene, American Board of Health Physics, Health Physics Society, Canadian Radiation Protection Association, International Radiation Protection Association, Nuclear Energy Institute, World Institute for Nuclear Security, Institute of Nuclear Materials Management , Rensselaer Society of Engineers

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## **Past Talks**

**Chair of the 3rd Consultancy Meeting to Clarify Concepts and Strategies Related to the Preparation, Conduct and Evaluation of Security Exercises at Nuclear Power Plants**  
IAEA

**Nuclear Security Alternative Technologies and Consequence for the Management for the Health Physicist**  
Security Workshop at Massachusetts Institute of Technology (MIT)

**Chair of the 2nd Consultancy Meeting to Clarify Concepts and Strategies Related to the Preparation, Conduct and Evaluation of Security Exercises at Nuclear Power Plants**  
International Atomic Energy Agency (IAEA)

**60th Annual Meeting of the Health Physics Society Professional Enrichment Program Course 'Physical Protection for Nuclear and Radiological Security'**  
American Board of Health Physics for Certified Health Physicist Continuing Education

**Chair of the 1st Consultancy Meeting to Identify Interfaces, Commonalities and Overlaps in the Concepts of Emergency Planning and Contingency Planning**  
IAEA

**Canadian Delegation Lead on Documents R708 Radiation Exposure from Electricity Generation, R707 Methodology for Estimating Human Exposures Due to Radioactive Discharges**  
United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) 62nd Session

**IAEA Report on Assessment and Prognosis in Response to a Nuclear or Radiological Emergency**  
IAEA

**Assessment of a Nuclear or Radiological Emergency Resulting from a Nuclear Security Event**  
International Experts'™ Meeting on Assessment and Prognosis in Response to a Nuclear or Radiological Emergency, IAEA

## **The Interface of Safety and Security in Response to a Malicious Event**

International Experts'™ Meeting on Assessment and Prognosis in Response to a Nuclear or Radiological Emergency, IAEA

## **Professional Development Course Presentation: Nuclear Security for the Health Physicist**

International Nuclear Security Education Network 2014 Annual Meeting

## **Role of the Health Physicist in Nuclear Security**

Health Physics Society 59th Annual Meeting

## **59th Annual Meeting of the Health Physics Society American Academy of Health Physics Professional Development Course 'Nuclear Security for the Health Physicist'**

ABHP for CHP Continuing Education

## **Exposure from Cardiac Imaging and Interventional Procedures**

Canadian Cardiovascular Society Congress

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## **Education**

### **Technische Universiteit Delft**

MiNS Masters in Nuclear Security 2014

### **Rensselaer Polytechnic Institute**

PhD Nuclear Engineering and Science

### **University of New Brunswick**

MScE Chemical Engineering

### **University of New Brunswick**

BSc (Honours) Applied Physics

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## **Accomplishments**

### **Distinguished Achievement Award, Canadian Radiation Protection Association**

Dr. Waller is the recipient of this 2017 award for his outstanding contributions to knowledge, practice and advancement of the field of radiation protection.

### **Certified Health Physicist (CHP), American Board of Health Physics**

Accredited by the Council of Engineering and Scientific Specialty Boards.

### **Certified Associate Industrial Hygienist (CAIH), and Diplomat of the American Board of Industrial Hygiene**

Certified by the world's largest organization for Industrial Hygiene (Occupational and Environmental Health and Safety).

**Certificate of Appreciation, International Atomic Energy Agency**

In recognition of Dr. Waller's outstanding contribution to nuclear security education.

**Certification in Science and Engineering for Nuclear Security**

Certified by the World Institute for Nuclear Security Academy.

**Editorial Board, International Journal of Nuclear Security (IJNS)**

Published by the University of Tennessee Institute for Nuclear Security, the IJNS is an open, international, scholarly discussion about nuclear security issues and insights among scholars, students, practitioners, and experts from academia, government, industry, and the private sector—as well as from the intelligence, military, and law enforcement communities.

**Senior Researcher Excellence Award, UOIT**

Awarded for excellence in nuclear and health physics research.

**Adjunct Professor, McMaster Institute of Applied Radiation Sciences, McMaster University**

In this role, Dr. Waller is supervising graduate student research.

**Modular Emergency Response Radiological Transportation Training (MERRTT) Certified Instructor**

Certified by the Transportation Emergency Preparedness Program of the U.S. Department of Energy.

**Education and Communication Award, Canadian Nuclear Society**

Recognized for his significant efforts in improving the understanding of nuclear science and technology among educators, students and the public.

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