



Man-Sung Yim

Korea Advanced Institute of Science and Technology
 msyim@kaist.ac.kr

Introduction

- The world faces a number of nuclear proliferation challenges.
- Nuclear proliferation can potentially lead into a huge global public health and economic disaster.
- The world must renew a sense of urgency about nuclear proliferation.
- While CTBTO has made important contributions in limiting both vertical and horizontal nuclear proliferation, much work remains to be done.

The role of youth for the future of nuclear nonproliferation

- Solving the current challenges of nuclear nonproliferation requires special kinds of people, people with altruistic minds who regard the interest of others as their own.
- Raising such people requires vision and dedicated efforts.
- Example:
 - ✓ France-Germany Youth Office (1963-)
 - ✓ CTBTO Youth Program
- How do we ensure that that continued spread of commercial nuclear power technology does not increase the risk of nuclear proliferation.

About NEREC

- Established in 2014 with the funding from the Ministry of Science & Technology of Korea
- Currently the sole university organization for nuclear nonproliferation education and research in Korea

Mission

- An independent think tank undertaking education and research to foster global nuclear nonproliferation conducive to peaceful use of nuclear technology

Objectives

- To train and nurture nuclear nonproliferation human resources
- To conduct nuclear nonproliferation policy research combining technical expertise and policy insights
- To lead discussions on the peaceful use of nuclear technology and various aspects of nuclear nonproliferation

Activities at a glance

- Education**
- **Summer Fellows Program** (Dual track: Young Fellow / Graduate Fellow)
 - **Graduate Education Program**
 MS and Ph.D. in nuclear engineering
 MA and Ph.D. in nuclear policy with KAIST Graduate School of S&T Policy
 - **Research fellowship for nuclear nonproliferation studies**
 - **Public outreach**
- Research**
- **Research in Nuclear Security and Nonproliferation**
 - **Research in Nuclear Fuel Cycle and Nuclear Safety**

- Int'l Cooperation**
- **NEREC Conference on Nuclear Nonproliferation**
 - **ROK-US Nuclear Policy Leadership Initiative (NPLI)**
 Partnership for Global Security and SAIS, Johns' Hopkins University in partnership with Korea Nuclear Policy Society and KAIST NEREC
 - **Collaboration with Stanton Foundation**
 - **Joint research and internship program**
 - **Experts Seminars and/or Workshops**
 - **University Cooperation**
 Cooperation with Harvard Belfer Center/Stanford CISAC, SIPRI, KTH, University of Utah, University of New Mexico, U of Texas, Austin, Tokyo Institute of Technology, Shanghai Jiatong U, Fudan U, Tsinghua U, Chinese Academy of Social Science

NEREC Summer Fellows Program

- Who** ▶ College/Grad students in nuclear engineering (+ other science/engineering) and political science (+ other social science/humanities) with gender balance
 ▶ Students are selected from three groups of countries
 (1.Advanced nuclear power countries, 2.Nuclear newcomer/aspiring countries, 3.South Korea)
- What** ▶ **Multidisciplinary learning and research on nuclear nonproliferation and policy**
- When** ▶ Every summer (July – August) for 5 weeks (Young Fellows) or 6 weeks (Graduate Fellows)
- Where** ▶ KAIST, South Korea + Seoul, Daejeon, Gyeongju, Changwon + Beijing, Shanghai, Tokyo, Mito
- Why** ▶ To educate and nurture next generation international leaders in nuclear nonproliferation
- How** ▶ Lectures, seminars, peer teaching on nuclear technology, international relations, and policy
 ▶ Group/individual research
 ▶ Team building + National culture sharing
 ▶ Domestic field trip
 (Government, Think-tanks, National research labs, Nuclear power plant, NSSS manufacturing heavy industry, Radioactive waste disposal facility)
 ▶ International field trip (China and Japan)
 ▶ Presentation at NEREC Conference on Nuclear Nonproliferation

Strengths of the Program

- Global participation (Nuclear newcomer/aspiring states + Advanced nuclear power states + South Korea)
- Global bonding: Bonding among participants
- Interdisciplinary study in nuclear technology and nuclear nonproliferation policy
- Participatory learning thru interactions with Korean and international experts
- Domestic/Int'l field trips: Introduction to Korea, China and Japan

Common Lectures

Theme	Topic
Nuclear Technology	Overview of Nuclear Energy
	Nuclear Fuel Cycle
Nuclear Nonproliferation	Introduction to Nuclear Nonproliferation
	Nonproliferation Regime and Export Control
	Terrorism & International Security
	North Korean Nuclear Problem
International Relations	International Relations Theories
	International Law: focusing on the Non-Proliferation Treaty
Nuclear S&T and Policy Issue	International Organization
	International History: from the Cold War to a new era
	Spent Nuclear Fuel Management
Nuclear Risk Management	Role of Nuclear Power and Public Acceptance
	Nuclear Exporter and Importer, and their Responsibilities
Research Methodology	Global Nuclear Governance
	Connection between Nuclear Technology and Proliferation
Others	Dynamics
	Basics of risk
Others	Risk of nuclear power
	Risk of nuclear weapons
Others	Nuclear risk perception and communications
	S&T Policy
Others	Quantitative Analysis Methodology
	Korean History and Hangul
Others	Global Leadership

Field Trip (Domestic & China / Japan)



NEREC Summer Fellows Program 2019

NEREC Alumni Network

NEREC Summer Fellows in Numbers

- 124 alumni from around 25 countries since 2014
- Expected to continue to grow exceeding 200 in 2020

	2014	2015	2016	2017	2018	Total
Total Number	20	24	26	29	25	124
Grad Fellows	4	9	13	15	17	58
Undergrad Fellows	11	12	11	14	8	56
High Schooler	5	3	2	0	0	10
Countries*	3	7	13	15	16	41
Universities*	12	9	17	24	20	64
NE Major	5	13	11	14	12	57
IR/Policy/Other Major	10	8	11	15	13	47
Male	5	14	10	12	13	60
Female	15	10	16	17	12	64



NEREC Conference on Nuclear Nonproliferation

- **An annual international conference** to share knowledge and insights of nuclear nonproliferation research/education community
- The final program of the NEREC Summer Fellows Program where the Fellows present their research work.
- **The goals of NEREC Conference are:**
 - 1) To review global nuclear nonproliferation status and to find paths forward to maintain and/or strengthen global nuclear nonproliferation.
 - 2) To explore avenues for the realization of denuclearization of North Korea nuclear weapons (vs, arms control).
 - 3) To examine the role of verification technologies in North Korea denuclearization and discuss the need for technology enhancement
 - 4) To effectively connect nuclear policy scholars with nuclear technology experts
 - 5) To effectively connect young generation from Korea and other countries of major strategic importance with nuclear nonproliferation experts in the world.
- **Key speakers of 2019 NEREC Conference:**
 Prof. Steve Miller (Harvard), Prof. Scott Sagan (Stanford), Prof. Chung-in Moon (Yonsei U), Prof. Vipin Narang (MIT), Prof. John Park (Harvard), Prof. Dingli Shen (Fudan U), Dr. Tong Zhou (Carnegie-Tsinghua), Prof. Bonggeun Jun (KNDA), Prof. Sara Pozzi (U Michigan), Prof. Kai Vetter (UC Berkeley), Prof. John Mattingly (NCSU), Prof. Sungyeol Choi (KAIST), Man-Sung Yim (KAIST)

2019 NEREC Conference

- **Date:** Aug 5-6, 2019
- **Place:** Korea National Diplomatic Academy, Seoul
- **Sessions:**
 - Status review of Korean Peninsula developments and global nuclear nonproliferation
 - Denuclearization of North Korea Nuclear Weapons
 - Role of technologies for nuclear nonproliferation/security
 - Preparing for the future of global nuclear nonproliferation



2018 NEREC Conference on Nuclear Nonproliferation

Organization



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Disclaimer: The views expressed on this poster are those of the author and do not necessarily reflect the view of the CTBTO