

# YANUAR ADY SETIAWAN

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## EDUCATION

**Ulsan National Institute of Science and Technology (UNIST)**, Ulsan, South Korea Ongoing  
PhD Program in Nuclear Engineering; Nuclear Science, Safety, and Simulation (NSSS) Laboratory.

**Texas A&M University (TAMU)**, College Station, Texas, USA May 2018  
Master of Science in Nuclear Engineering (CGPA 3.87/4.0)  
Full-sponsored by Indonesia Endowment Fund for Education (LPDP)  
*Adversary Path Analysis of A Physical Protection System Design Using A Stochastic Approach*

**Universitas Gadjah Mada (UGM)**, Yogyakarta, Indonesia August 2015  
Bachelor of Nuclear Engineering with Cum-laude Graduate Certificate (CGPA 3.51/4.0)  
*Vulnerability Study of Physical Protection System for Medical <sup>60</sup>Co in Radiotherapy Facility.*

## GRADUATE COURSEWORK

Radiation Interaction and Shielding; Radiation Detection and Measurement; Nuclear Nonproliferation and Arms Control; Nuclear Reactor Theory; Nuclear Fuel Cycle and Materials Safeguards; Reactor Analysis and Experimentation; Monte Carlo Transport Theory; Nuclear Terrorism Threat Assessment and Analysis; Nuclear Fuel Engineering; Severe Accidents; Nuclear Reactor Core Analysis;

## TRAINING/COURSE

- “OINS Nonproliferation Workshops”, Oak Ridge National Laboratory (ORNL), Oak Ridge, November 13-16, 2017.
- “5<sup>th</sup> Nuclear Facilities Experience”, Center for Nuclear Security Science and Policy Initiatives (NSSPI), Japan, August 21-26, 2017.
- “Nuclear Nonproliferation, Safeguards, and Security in 21<sup>st</sup> Century”, Brookhaven National Laboratory (BNL), Brookhaven, June 19-30, 2017.
- “International Nuclear Safeguards Policy and Information Analysis”, Middlebury Institute of International Studies (MIIS) and Lawrence Livermore National Laboratory (LLNL), Monterey, June 5-9, 2017.
- “Physical Protection for Nuclear Security Management”, UGM Student Chapter of Institute of Nuclear Material Management, Yogyakarta, March 21-22, 2015.
- “Radiochemistry Training”, Indonesian National Nuclear Energy Agency (BATAN), Jakarta, November 4-8, 2013.
- “Regional Training Course on Physics and Technology of the Advanced Water-Cooled Reactor with Computer-based Educational Simulators”, International Atomic Energy Agency (IAEA) and China Nuclear Power Operation Technology (CNPO), Wuhan, April 8-12, 2019.

## RESEARCH/WORK EXPERIENCE

**Graduate Student Researcher at NSSS Lab**, Ulsan March 2020 – Now

- Verifying and validating photonuclear (photoneutron-production) reaction module in MCS Monte-Carlo code.
- Analyzing natural circulation capability of PWR-type reactor for thermal-induced steam generator tube rupture (TI-SGTR) accident analysis following station blackout event.
- Investigated the contribution of delayed-photoneutron from neutron-irradiated <sup>139</sup>La in heavy water reactor.

**Lecturer at UGM**, Indonesia November 2018 – Now

- Team-teaching for calculus, chemistry, and mechanics classes in Fall Semester 2019.
- Organized a one-week coursework on nuclear reactor design by a visiting Professor from Hanyang University.
- Assisted the use of monte-carlo method implementation in the nuclear system design class.
- Assisted the nuclear engineering undergraduate program accreditation documents preparation and processes for the Indonesian Accreditation Board for Engineering Education (IABEE).
- Assisting the making of nuclear power-related book for Indonesian Nuclear Regulatory Body (BAPETEN).

**Student Researcher at NSSPI, Texas**

September 2016 – May 2018

- Developed a stochastic-based computational tool to measure the effectiveness of physical protection system as a function of protection element performance, adversary strategy, and different type of insider's involvement.

**Faculty Research Assistant at UGM, Indonesia**

July – October 2015

- Assisted faculty member for project from Indonesian National Nuclear Regulatory Agency (BAPETEN).
- Analyzed the compatibility and applicability of existing national safety design regulation for gas-cooled reactor.
- Evaluated existing national safety design regulation to the Fukushima accident case, and recommended changes to enhance the safety design regulation.

**Student Researcher at UGM, Indonesia**

January – July 2015

- Investigated the detection function of existing physical protection system in a radiotherapy facility.
- Identified the weakness points of and potential threats to the existing physical protection system by using modified fault tree analysis method.

**PUBLICATION**

- Y.A. Setiawan, D. Fynan, "Neutron Capture on Stable Fission Product  $^{139}\text{La}$  Contribution to Delayed-Photoneutrons in Heavy Water Reactors", *Transactions of the ANS Winter Meeting 2020*, under review.
- Y. A. Setiawan, "Insider Threat and Intrusion Strategy Analyses for Physical Protection System in Nuclear Facility with Stochastic Approach (in Indonesian)", *Jurnal Pengembangan Energi Nuklir (JPEN)*, vol. 22: 1, page 1-7, DOI:10.17146/jpen.2020.22.1.5460, 2020.
- Y.A. Setiawan, S. Chirayath, E. Kitcher, "MAPPS: A Stochastic Computational Tool for Multi-path Analysis of Physical Protection Systems", *Annals of Nuclear Energy*, vol. 137, DOI:10.1016/j.anucene.2019.107074, 2020
- Y. A. Setiawan, "Intrusion Strategy Variation and Stochastic Approach on the Analysis of Physical Protection System at Nuclear Facility (in Indonesian)", *Seminar Nasional Teknologi Energi Nuklir (SENTEN)*, 2019.
- Y. A. Setiawan, S. Chirayath, "Stochastic Approach in Single Path Analysis of Adversary's Intrusion Strategies in Physical Protection System (PPS) Effectiveness Evaluation", *INMM 59<sup>th</sup> Annual Meeting Proceeding*, 2018.
- Y. A. Setiawan, S.H. Putero, H.B. Santosa, "Minimal Cut Sets Evaluation as a Qualitative Method for Security System Vulnerability Analysis", *INMM 58<sup>th</sup> Annual Meeting Proceeding*, 2017.
- Y. A. Setiawan, "Opportunities for International Students in Nuclear Security Education", *Working Paper for Federation of American Scientists (FAS) Nuclear Education Project*, 2017.
- Y. A. Setiawan, S. Bakhri, A. Fahmi, "Programmable Logic Controller Application for Stepper Motor-based Control Rod Drive Mechanism Simulator" (in Indonesian), *Seminar Nasional Teknologi Energi Nuklir (SENTEN) Proceeding*, 2014.

**PRESENTATION**

- "Intrusion Strategy Variation and Stochastic Approach on the Analysis of Physical Protection System at Nuclear Facility (Bahasa)", SENTEN 2019, Padang, September 2019.
- "Minimal Cut Sets Evaluation as a Qualitative Method for Security System Vulnerability Analysis", INMM 58<sup>th</sup> Annual Meeting, Indian Wells, July 2017.
- "Minimal Cut Sets Evaluation of Modified Fault Tree Method for Security System Vulnerability Analysis in Radiotherapy Facility Case Study", INMM Southwest Chapter Meeting, Santa Fe, May 2017.
- "Nuclear Security Education for an International Student", Science and Security Summit 2017, Federation of American Scientists (FAS), Washington D.C., April 2017.

**ACTIVITIES****Culture and Event Coordinator at TAMU Indonesian Student Association**

September 2016 – May 2018

- Organized Indonesian students at TAMU to display Indonesian cultural booth and gain US \$1,000 profit by selling Indonesian cuisines at 1-day Brazos Valley Worldfest 2016 event.
- Arranged Indonesian students to practice and perform Kecak dance at Indonesian Consulate General – Houston
- Oversaw the Indonesian student committee for Brazos Valley Worldfest 2017 and Southeast Indonesian Student Association Sports Cup 2018.

**Group Leader at Indonesia Endowment Funds of Education (LPDP)**

December 2015 - February 2016

- Supervised 120 members to completed 40 tasks and a quarantine week of LPDP pre-departure program.

**Members-at-Large at UGM Institute of Nuclear Materials Management (INMM)** September 2013 – June 2014

- Conducted, managed, and directed the officers of the chapter in accordance with its charter.

**Team Leader at SATU BUMI Expedition “Binaiya Karst Exploration”** February 2013 – January 2014

- Managed the 5-months preparation including fund-raising, timeline arrangement, logistic procurement.
- Led a 9-members team for the 1-month expedition of exploration, documentation, research, and volunteering.
- Directed the processing and organized a 3-days publication exhibition of the expedition results.

**Vice-Chairman at UGM Faculty of Engineering Outdoor Club “SATU BUMI”** March 2012 – February 2013

- Supervised the work of internal board of organization (including the logistic maintenance, fund-raising, public relation, social contribution) and occasional event committee within the organization.

**ACADEMIC/TECHNICAL COMPUTER SKILLS**

- Proficient level in using Microsoft Word, Excel, and Power Point
- Pre-intermediate level in using MATLAB, MCNP, MCS
- Basic level in using C++, Python, SERPENT, and PRAETOR