# HANANIEL SETIAWAN

1527 Wintercrest Street
East Lansing, MI 48823
+1 (517) 599-1791
setiawan@nscl.msu.edu, https://hansetiawan.github.io/

National Superconducting Cyclotron Laboratory
Michigan State University
SLAC National Accelerator Laboratory
Stanford University

## EDUCATION

**B. S.,** Physics (Honors), Michigan State University, East Lansing, MI (4.0/4.0) 2017
**A. S.**, Engineering Physics, Lansing Community College, Lansing, MI (3.96/4.0) 2014
**A. S.**, Mathematics, Lansing Community College, Lansing, MI (3.96/4.0) 2014

## MAIN RESEARCH AND WORK EXPERIENCES

**Pion Production Simulations for Symmetry Energy Studies**
National Superconducting Cyclotron Laboratory (NSCL) 5/2013-Prese
Prof. ManYee Betty Tsang
Symmetry Energy Project and SPiRIT International Collaboration

1. Performed simulations of heavy ion collisions using Boltzmann-Uehling-Uhlenbeck Transport code and developed several analysis programs to determine the effect of Nuclear Symmetry Energy to pion production in high density nuclear region (result of this work was submitted for publication in October 2016 to Phys. Rev. C)
2. Assisted in the design and construction of the SAMURAI Pion Reconstruction and Ion Tracker (SPiRIT) time-projection chamber, using Autodesk Inventor to draw parts of the TPC that were then submitted to the machine shop and installed to the apparatus.
3. Contributed to nuclear physics experiments using the High Resolution Array (HiRA) detector at NSCL
4. Maintained the Symmetry Energy Project Collaboration, SPiRIT Outreach, and the NSCL Library websites.

**Discretization of LCLS FEL Tapering to Optimize X-ray Power with Simulated Annealing Method**
Stanford University, SLAC National Accelerator Laboratory 6/2016-Present
Dr. Juhao Wu
Linac Coherent Light Source (LCLS/LCLS-II)

1. Successfully attempted to discretize the tapering of the undulator magnets using both Markov Chain Monte Carlo (Simulated Annealing), as well as genetic algorithm in MATLAB environment to improve the X-ray power of SLAC's LCLS Free Electron Laser
2. Using Genesis 1.3 to simulate LCLS, the result includes an improvement of more than 40% increase of peak power and general trends to be studied (part of this work, along with other collaborators' results, were submitted and has been accepted for publication in Nucl. Inst. and Meth. A)

**The Design and Testing of the Half Wave Plate Rotator for the BLAST-TNG Telescope**
Northwestern University, CIERA 6/2015-8/2015
Prof. Giles A. Novak
BLAST-TNG International Collaboration

1. Repurposed the SPARO cryostat, which had previously been used as a cryogenic instrument deployed at the South Pole, to be re-used for cold-testing of BLAST-TNG telescope's Half Wave Plate rotator, using SolidWorks to design the modification needed.
2. Developed a remote temperature monitoring system using a Silicon Diode thermometer, an Ethernet system, and C++ program

**Commented [JM1]:** Ordinarily the order of the sections would be:
1.Education
2.Work Experience (incl. research experience)
3.Maybe put "Other Projects" after that
4.Publications
5.Presentations
6.Service & Volunteer Activities
7.Awards
8.Professional Membership
9.Professional Trainings
10.Skills
11.Hobbies
Some of these (esp the ones listed near the end, I am less confident about, e.g., not sure about "Professional Trainings")
Having said that, you may want to look at examples from your field to see what is standard/most common

**Commented [JM2]:** Can these be bulleted like the work section?

3. Volunteered to improve the Northwestern University Machine Shop's website

## OTHER PROJECTS

1. **Nanowire Sample Preparation of Transition Metal Dichalcogenides for STM/STS Studies**, Spring 2016
   MSU, Advisors: Prof. P. Zhang (Physics), T. Golubev (Physics)
2. **Cross-Sectional and Topological Analysis of Perovskite Photovoltaics Cells Using SEM**, Fall 2015
   MSU UGS200 Honors, Advisors: Prof. C. Boehlert (Materials Science), Dr. P. Askeland (Engineering)
3. **Three Species Population Dynamics using Modified Lotka-Volterra Equations**, Fall 2015
   MSU PHY415, Advisors: Prof. C. Murphy (Ecology), Profs. E. H. Simmons and R. S. Chivukula (Physics)
4. **Utilization of Euler's Method to Model Projectile Motion with MATLAB GUI**, Spring 2015
   MSU PHY321 Honors Project, Advisor: Prof. J. Pumplin (Physics)
5. **Independent Study in Nuclear Magnetic Resonance**, Spring 2014
   LCC, Advisors: Prof. J. Repko (Physics), Prof. D. Shane (Physics), Prof. E. Bryant (Chemistry)

**Commented [JM3]:** Were these from class? Honors Options? I think it is fine to list the way you have, just consider Dr. instead of Prof. to keep it consistent with other work.

## EXTRACURRICULAR ACTIVITIES AND APPOINTMENTS

Ambassador and Campus Based Leader, *Gates Millennium Scholars Program* 5/2014-Present

- Recruited potential applicants for the GMS program, by visiting local high schools and present information about the scholarship.
- Reviewed applicants essay entries and application materials through essay workshops
- Mentored undergraduate scholars at Michigan State University to ensure academic success
- Planned and executed events for the GMS group at MSU

Senator, *the Academic Senate of Lansing Community College* 4/2013-6/2014
(Committee Assignments: Competitiveness and Innovation, Resource Management/Fiscal Responsibility)

- Co-initiated and supported the creation of events, such as the annual International cafe, and the Centre of Engaged Inclusion, to support diversity efforts on-campus.
- Co-organized the 2013 Dumpster Diver event to promote recycling on-campus.
- Served in the Gateways to Completion pilot program, as a steering committee member, and provided inputs to decrease the DFWI (Drop-Fail-Withdraw-Incomplete) rates among students.
- Contributed to LCC's 2014 long-term Academic Master Plan through discussion/research with other senators.
- Attended college official ceremonies and outside events, such as the Lakeshore's 2014 Diversity Alliance Summit and Lansing Mayor's Ramadan Unity Dinner in 2013.
- Served in the Sustainability Advisory Committee to the President and the Multicultural Advisory Committee.

**Commented [JM4]:** See comment above re: separate categories. The more I think about it, I would have a section titled "Research Experiences" including the info above and the info in the main research experiences and then a second section on "Extracurricular Experiences" and list GMS and Academic Senate. As these weren't paid – they should be separated. If you choose to add an "Extracurricular" section, it should go after all research stuff (projects, papers, presentations)

Outreach Volunteer, *Various Institutions* 5/2014-Present

- Presented nuclear science to local events and fairs, such as the MSU Physics and Astronomy Day in 2015 and 2016, on behalf of NSCL and the Joint Institute for Nuclear Astrophysics.
- Served as supervisor for Michigan Science Olympiad since 2013 (Region 11 and State-level competitions)
- Presented science concepts to elementary school students and supervised other volunteers on scientific content of their presentations during LCC Science & Mathematics Elementary Exploration in 2012 and 2013.
- Presented science/physics concepts to the public for MSU Science Festival in 2014.
- Volunteered as an assistant for the director for the Joint Institute for Nuclear Astrophysics-Physics of Atomic Nuclei summer physics program for high school science teachers and students in 2014.

**Commented [JM5]:** Is there anything in here that does not appears in the Volunteer section? I don't see the difference between the 2 so would recommend getting rid of it and adding explanatory language, if necessary in the Volunteer section.

## OTHER EXTRACURRICULAR ACTIVITIES

**Member**, *MSU Nuclear Policy Working Group* 2015-Present
**Member**, *Society of Physics Student at MSU and Spartan Science Olympiad Club* 2015-Present
**Member and Officer**, *Lansing Community College International Club* 2011-2014
**Member,** *MSU and LCC Badminton Clubs* 2012-Present
**Pianist**, *Lansing Chinese Christian Church* 2010-2014

## PUBLICATIONS

J. Wu, N. Hu, H. Setiawan, X. Huang, T.O. Raubenheimer, Y. Jiao, G. Yu, A. Mandlekar, S. Spampinati, C. Chu, J. Qiang, "Multi-Dimensional Optimization of a Terawatt Seeded Tapered Free Electron Laser with a Multi-Objective Genetic Algorithm." *Nucl. Instr. And Meth. A,* http://dx.doi.org/10.1016/j.nima.2016.11.035 (Accepted, November 2016)

M.B. Tsang, J. Estee, H. Setiawan, W.G. Lynch, J. Barney, M.B. Chen, G. Cerizza, P. Danielewicz, J. Hong, P. Morfouace, R. Shane, S. Tangwancharoen, K. Zhu, T. Isobe, M. Kurata-Nishimura, J. Lukasik, T. Murakami, and the SπRIT collaboration, "Pion Production in Rare Isotope Collisions." *Phys. Rev. C.* (Revised, October 2016)

## PRESENTATIONS AND TALKS

1. Aug 2016, H. Setiawan, J. Wu, *Discretization of LCLS FEL Tapering to Optimize X-ray Power Using Simulated Annealing Method*, **SLAC/Stanford Summer Research Symposium**, Menlo Park CA
2. Apr 2016, H. Setiawan, P. Zhang, P. Askeland, et al., *Cross-Sectional and Topological Analysis of Perovskite-based Photovoltaics Cell Using Scanning Electron Microscope*, **University Undergraduate Research and Arts Forum**, Michigan State University, East Lansing MI
3. Jan 2016, H. Setiawan, G. A. Novak, P. Ashton, et al., *The Design and Testing of the Half Wave Plate Rotator for the BLAST-TNG Telescope*, **American Astronomical Society 227th Meeting**, Kissimmee FL
4. Dec 2015, H. Setiawan, T. Gipson, M. James, M. Hill, K. Mireles, *College Financial Aid 101 and Overview of the Gates Millennium Scholars* Program, **East Lansing and Sexton High Schools**, Lansing MI
5. Nov 2015, H. Setiawan, M. B. Tsang, J. Estee, et al., *The Role of Nuclear Symmetry Energy in Heavy Ion Collisions*, **9th Undergraduate Physics Research Conference**, Wayne State University, Detroit MI
6. Aug 2015, H. Setiawan, G. A. Novak, P. Ashton, et al., *The BLAST-TNG Project: Repurposing the SPARO Cryostat for HWPr Cold-Testing*, **Adler Planetarium**, Chicago IL
7. Aug 2015, H. Setiawan, G. A. Novak, P. Ashton, et al., *The BLAST-TNG Project: Repurposing the SPARO Cryostat for HWPr Cold-Testing*, **Northwestern Summer REU Forum**, Evanston IL
8. Apr 2015, H. Setiawan, M. B. Tsang, R. Shane, et al., *Pion Production Simulations for Symmetry Energy Studies*, **University Undergraduate Research & Arts Forum**, Michigan State University, East Lansing MI
9. Dec 2014, H. Setiawan, C. Yang, S. Fenton, and G. J. Aponte, *College Financial Aid 101 and Overview of the Gates Millennium Scholars* Program, **Lansing Eastern and Sexton High Schools**, Lansing MI
10. Apr 2014, H. Setiawan, J. Repko, D. Shane, and E. Bryant, *Nuclear Magnetic Resonance: Theory and Application*, **Lansing Community College StarScapes Research and Art Forum**, Lansing MI

## AWARDS, SCHOLARSHIPS, AND FELLOWSHIPS

| | |
|---|---|
| **Gates Millennium Scholar**, Bill and Melinda Gates Foundation | 2014-Present |
| **Goldwater Honorable Mention,** Goldwater Foundation | 2016 |
| **MSU Honors College Dean's Research Scholar** | 2015 |
| **MSU College of Natural Science Dean's Research Scholar** | 2016 |
| **L. W. Hantel Endowed Fellowship**, Department of Physics and Astronomy, MSU | 2016 |
| **H. Tolles Scholarship**, Department of Mathematics, MSU | 2015 |
| **MSU Dean's List** | 2014-Present |
| **First Place Award**, MSU Undergraduate Research Forum-UURAF | 2015 |
| **LCC President's List** | 2012-2014 |
| **All-Michigan Academic Team**, Coca-Cola Scholars Foundation and Phi Theta Kappa | 2014 |
| **Khan Academy Tutoring Challenge Honorable Mention** | 2014 |
| **J. Aldinger Scholarship**, LCC Foundation | 2013 |

**Commented [JM6]:** Changed to hanging indent.

Also do you know what date it will be in press? If not, I think just putting "Accepted; in press" is sufficent

**Commented [JM7]:** Double-check formatting based on your discipline in mine it would be:
Setiawan, H. & Wu, J. (2016). *Discretization of LCLS.* Presented at SLAC/Stanford Summer Research Symposium. Menlo Park, CA: August ___, 2016.

Every line after the 1st would be indented like the paper section

**Commented [JM8]:** These likely should be in some consistent order. I would recommend by date starting with most recent

## PROFESSIONAL MEMBERSHIPS

| | |
|---|---|
| American Association of Physicists in Medicine | 2016-Present |
| American Astronomical Society | 2015-Present |
| American Physical Society | 2015-Present |
| Association for the Advancement of Sustainability in Higher Education | 2012-Present |
| FIRST Robotics Alumni Network | 2014-Present |
| Joint Institute of Nuclear Astrophysics-Center for Evolution of Elements | 2016-Present |
| Phi Theta Kappa Honor Society (Mu Tau Chapter Treasurer 2013-2014) | 2012-Present |
| Society of Physics Students | 2014-Present |

Commented [JM9]: Order most recent to least recent

## SERVICE AND VOLUNTEERISM

| | |
|---|---|
| **Volunteer**, *Spartan Global Day of Service (Lansing Habitat for Humanity)* | 2016 |
| **Re/Present Blog Contributor**, *Asian Pacific Islanders American Scholarship Fund* | 2014-Present |
| **Nuclear Science Presenter**, *MSU Physics and Astronomy Day and MSU Science Festival* | 2015-2016 |
| **GED Tutor**, *Capital Area Literacy Coalition* | 2013-2015 |
| **Volunteer**, *HOPE Lansing, Anti Trafficking Ministry* | 2014 |
| **Co-chair**, *LCC International Café Event* | 2013-2014 |
| **Presenter and Volunteer**, *LCC International Students Orientation* | 2013-2014 |
| **Treasurer**, *Phi Theta Kappa Mu Tau Chapter* | 2013-2014 |
| **Volunteer and Fund-raiser**, *Lansing Relay for Life* | 2013-2014 |
| **Committee Member**, *LCC Multicultural Committee* | 2013 |
| **Committee Member**, *LCC Sustainability Advisory Committee* | 2012-2013 |
| **Volunteer**, *2013 International Symposium on Nuclear Symmetry Energy* | 2013 |
| **Volunteer**, *Impression 5 Science Museum* | 2012 |
| **Volunteer**, *Spartan Stadium Concession for FBC Okemos* | 2011-Present |
| **Volunteer**, *MSU World Languages Day* | 2010 |

Commented [JM10]: Order most recent to least recent.

## SKILLS

- English, Indonesian, Javanese (Native/Bilingual Proficiency), Spanish, Mandarin, German (Beginner)
- Extensive experience in MATLAB, Ms. Office. Also familiar with the UNIX shell environment
- Some experience with C++, Python, Solidworks, Autodesk Inventor, Adobe Photoshop/Dreamweaver, HTML, CSS, LaTeX, Topdrawer, CERN-root, Mathematica, TensorFlow
- Limited experience with Scanning Electron Microscopy (SEM) and Atomic-Force Microscopy (AFM)

## TRAININGS

***National Superconducting Cyclotron Laboratory:***
Radiation safety, Workplace safety, CPR/AED, Chainfall/overhead hoist basic, Work on equipment with >50V, >5mA, or >10J stored energy, and Science outreach training

***Northwestern University:***
Responsible Conduct of Research (RCR), RSG research/science communication training

***Gates Millennium Scholars Program:***
Leadership training as Campus Based Leader and Mentor (April 2015, Atlanta, GA)

***SLAC National Accelerator Laboratory:***
Workplace safety, Cyber-security and traffic safety

## REFERENCES (RESEARCH AND ACADEMIC)

**Prof. M. Betty Tsang**, Professor of Physics
National Superconducting Cyclotron Laboratory and Michigan State University
Phone: +1 (517) 908-7386
Email: tsang@nscl.msu.edu

**Dr. Juhao Wu**, Accelerator Physicist
SLAC National Accelerator Laboratory and Stanford University
Phone: +1 (650) 926-8673
Email: jhwu@slac.stanford.edu

**Prof. Elizabeth H. Simmons**, Univ Distinguished Professor, Associate Provost, & Dean of Lyman Briggs College
Michigan State University
Phone: +1 (517) 353-6486
Email: esimmons@msu.edu

**Prof. Giles Novak**, Professor of Physics
Northwestern University
Phone: +1 (847) 491-8645
Email: g-novak@northwestern.edu

**Dr. Rebecca Shane**, Diagnostic Research Scientist
Facility for Rare Isotope Beams
Phone: +1 (517) 908-7633
Email: shane@frib.msu.edu

**Prof. Teena Gerhardt**, Assistant Professor of Mathematics
Michigan State University
Phone: +1 (517) 432-1562
Email: teena@math.msu.edu

## REFERENCES (OUTREACH AND COMMUNITY SERVICE)

**Dr. Zachary Constan**, Outreach Coordinator
National Superconducting Cyclotron Laboratory
Phone: +1 (517) 908-7363
Email: constan@nscl.msu.edu

**Dr. Justin Micomonaco**, Director of Assessment and Research
The Honors College at Michigan State University
Phone: +1 (517) 355-2326
Email: micomona@msu.edu

Commented [JM11]: parate page for references.

Also is this list in order of preference of them contacting people? Be sure it is.

Commented [JM12]: Add her new title