

THE FUTURE IS ...

N.E.A.R.

NANOTECHNOLOGY EDUCATION AND RESEARCH

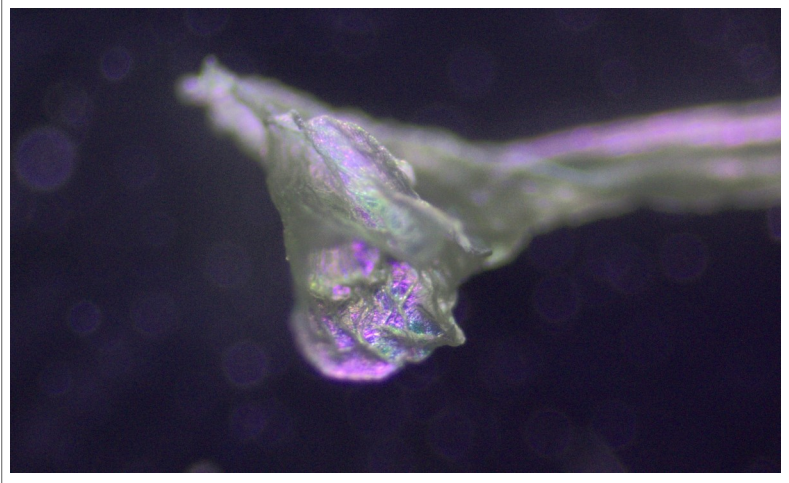
www.thefutureisnear.org



Technology & Engineering
Discover your Future



PLTW



The Future is N.E.A.R. program (Nanotechnology Education and Research) at North Penn is a custom designed STEM education endeavor engaging senior Engineering Academy students in the exciting world of nanotechnology, experimental design, and engineering research.

Students work in design teams to research and develop solutions to global challenges by capitalizing from the fundamentals of materials science, engineering, and nanotechnology while utilizing a combination of their own creativity coupled with some of the latest published research available.

The N.E.A.R. program is woven into the Engineering Design and Development course of the Project Lead the Way program here at North Penn. It offers our students an opportunity to gain essential 21st century skills that prepare them to become successful leaders

THURSDAY, MAY 30TH, 2024

NORTH PENN HIGH SCHOOL AUDITORIUM

SEVEN O'CLOCK P.M.

2023 - 2024 Engineering Design and Development Nanotechnology & Engineering Research Teams

Welcome to the 19th annual North Penn High School Engineering Academy Nanotechnology and Engineering Symposium!

The evening will begin at 7:00pm in the auditorium with introductions to research from each of the teams. The students will bring you up to date with the research endeavors they have been performing throughout this school year. Following their presentations, the evening will continue in the auxiliary gymnasium where the students will offer poster presentations, interactive demonstrations of their research, and much more...



RenewaTech

Alexander Edward Burns
Caleb John DiLenge
Zachary Anthony Duld
Owen Peter Fritz



eneRPy

Progejim Das
Rakibul Hoque



ESpada Corps

William Lawrence Kerr Bernal
Jackson Wolfgang Hier
Braden Toland Snow



EcoPlastics

Sophia Christine Marsicano
Laura Vu Pham



NitroPhix

Kaitlin Rose Vaccaro
Claire Irene Adams



nanoCARBON

Joseph Grosso
Ryan Benjamin Shollenberger
Eric Qian



Captalight

Nervana Nabil
Sean Christian Tecklin



I.R.I.S.

Thomas John Moore
Adam James Riley
John Albert Steelhammer
Mason Cole Stigler



Gyrostride Solutions

Ayman Faraz
Ethan William Spencer
Evan Robert Spencer
Shayaan Kabir



B & M Elevated Prosthetics

Samantha Rose Blanchard
Gabrielle Chloe Miller

CD-X



CD-X

Rowan Quinn Heidt
Ahnaf Raman

2023 - 2024 Engineering Design and Development Nanotechnology & Engineering Research Teams



Claire Irene Adams NitroPhix

Claire will be attending The Pennsylvania State University for Computer Engineering. She completed 4 engineering courses in the Engineering Academy. During her time at North Penn, she was a 4-year player for the girls volleyball team spending 2 seasons as a captain and a 4-year manager for the boys volleyball team. Outside of school, she enjoys going to car shows and working on her own personal cars with her father.



William Lawrence Kerr Bernal Espada Corps

William will attend the Embry-Riddle Aeronautical University Honors Program majoring in Aerospace Engineering with a track of Astronautics. He has completed 4 engineering courses. Always striving to be greater, he joined the All-State Concert Band, was a cabinet member of the National Honor Society, the lead clarinet of Frozen: The Broadway Musical, earned his Eagle Scout, and was a member of the North Penn Marching Knights during their national championship winning season.



Samantha Rose Blanchard B&M Elevated Prosthetics

Sami is going to East Stroudsburg University to major in Early Education with a certificate in Special Education. She has taken 4 classes within the Engineering Academy. Sami juggles being a member in the Marching Knights, Indoor Visual Ensemble, EPICS club, and NHS. Because of the amazing teachers she has had in the Engineering Academy, Sami hopes to one day work at a North Penn elementary school and start an elementary STEM program.



Alexander Edward Burns RenewaTech

Alex will be studying at The University of Colorado Boulder and plans to study aerospace engineering. He has completed five courses in the Engineering Academy. He was a two year varsity athlete on the water polo team, a three year varsity athlete on the swim team, and a member of the special olympics club.



Progejim Das eneRPy

Progejim plans to major in software engineering at Drexel University. He has completed five courses in the Engineering Academy. Additionally, he has been a member of Link Crew and Bengali Club. Outside of school, he works part-time at a retirement home and volunteers at his local Temple.



Caleb John DiLenge RenewaTech

Caleb will be studying mechanical engineering at The Pennsylvania State University. In his three years at the high school he actively participated in the Engineering Academy and has gone through four courses. He was a captain of the North Penn Water Polo team, a varsity member of the Swim Team, a member of the auto club, and a member of the special olympics club.

2023 - 2024 Engineering Design and Development Nanotechnology & Engineering Research Teams



Zachary Anthony Duld *RenewaTech*

Zach plans to study mechanical engineering at The Pennsylvania State University. He has been involved with the North Penn Engineering Academy throughout highschool, completing four courses. He was a four year varsity athlete on the track and field team, a varsity athlete on the football team, and a member of the key club.



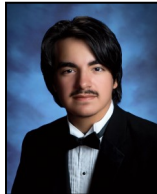
Ayman Faraz *GyroStride Solutions*

Ayman will attend Drexel University and plans to major in Electrical Engineering this fall. A proud member of the Engineering Academy, Ayman has taken six courses in the Engineering Academy. Aside from that, he has also made numerous Engineering projects in CHASE club, and was the President of Muslim Student Association this year, in which he joined the MIST Science Fair competition and competed in and won for two years.



Owen Peter Fritz *RenewaTech*

Owen will be enrolled at Virginia Polytechnic Institute and State University in the incoming Fall. Owen plans to pursue a degree in Computer Engineering. In high school, Owen participated in North Penn Swimming and was the Captain of the North Penn Water Polo team. Owen has completed five courses in the Engineering Academy.



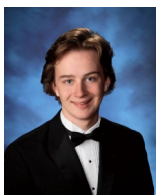
Joseph Grosso *nanoCARBON*

Joseph will be attending Penn State for Mechanical Engineering. He has dedicated his years at North Penn to studying and taking classes to reveal the path that he wants to take. He is working hard in his EDD class and going to the E.P.I.C.S club to help research and develop. In his free time, he enjoys long hikes in the wilderness and reading.



Rowan Quinn Heidt *CD-X*

Rowan will be attending The Pennsylvania State University, with the intended major of Materials Science and Engineering. Rowan has completed 5 engineering courses while at North Penn's Engineering Academy. Rowan was involved in Model aviation club serving as its president for 2 years, played in the North Penn Ultimate Frisbee club, and was a member of the International Research Team. Outside of school Rowan works at Brittany Pointe Estates and enjoys spending his time at the gym and playing soccer.



Jackson Wolfgang Hier *Espada Corps*

Jackson will be attending the Drexel University College of engineering in Philadelphia, Pennsylvania with a major in architectural engineering. He has completed 4 engineering courses at the highschool. He's participated in music programs for his entire high school career, joined North Penn Television as a member of the morning show, as well as actively participates in Marine and Botanical Society activities such as the annual plant sale and Envirothon.

2023 - 2024 Engineering Design and Development Nanotechnology & Engineering Research Teams



Rakibul Hoque eneRPy

Rakibul will be attending Pennsylvania State University, pursuing a major in Computer Engineering. He has completed five courses in North Penn's Engineering Academy. In high school, he has been involved in a diverse selection of student activities varying from sports to culture. When he's not in school, he volunteers at his local Mosque and works a part-time job.



Shayaan Kabir GyroStride Solutions

Shayaan has been accepted into multiple colleges and plans to major undecided starting this fall. He has completed 5 courses in North Penn's Engineering Academy. He is also a badminton club member and has participated in Badminton tournaments.



Sophia Christine Marsicano EcoPlastics

Sophia will be attending The Pennsylvania State University for Computer Engineering. She has completed four courses at North Penn's Engineering Academy. She was the Secretary of the Women in Engineering club throughout her high school career. She was also a member of the varsity bowling team in her senior year. Outside of school, she enjoys volunteering and working at her summer job.



Gabrielle Chloe Miller B&M Elevated Prosthetics

Gabby plans to attend the University of Delaware to major in Biomedical Engineering. During her time at North Penn, she has completed four courses in the Engineering Academy. She is a member of the International Research Team and is an officer in the Women in Engineering club. She is also active in North Penn Theatre, designing costumes for all the shows and has been figure skating for many years.



Thomas John Moore I.R.I.S.

Thomas will be attending Penn State for Mechanical Engineering. He has taken a multitude of courses from the Engineering Academy over his high school career. He serves as vice president for the Model Aviation Club in addition to being a lab assistant for the International Research Team. Other hobbies include baseball and guitar.



Nervana Nabil Captalight

Nervana will attend the Rochester Institute of Technology to major in Mechanical Engineering Technology. She has completed five courses in the North Penn Engineering Academy. After school, she works at Skyzone Trampoline Park as a supervisor. She has been a member of the Auto Club, and Women in Engineering, and has worked her way up to become President of both clubs.

2023 - 2024 Engineering Design and Development Nanotechnology & Engineering Research Teams



Laura Vu Pham EcoPlastics

Laura will be attending the University of Delaware for Chemical Engineering and was also accepted to UD's Honors College. She has completed 4 courses in the Engineering Academy. She's been Vice President of both the E.P.I.C.S Club and The Writers' House her senior year, and has been an active member of the Environmental Action Club, Marine & Botanical Society, Key Club, and NHS throughout her time at NPHS. Outside of school, she loves to volunteer, build Legos, and bake.



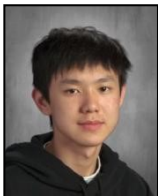
Ahnaf Rahman CD-X

Ahnaf will be attending Drexel University's College of Engineering with the intended major of Materials Science and Engineering. Ahnaf has completed 5 engineering courses. Outside of the classroom, Ahnaf is the treasurer of North Penn High School's Muslim Student Association and the event chair of the Bengali Cultural Club. Outside of school, Ahnaf works part time at Mens Warehouse, is a huge watch enthusiast and collector, and a huge car fanatic and Formula One racing fan.



Adam James Riley I.R.I.S

Adam is planning on attending Rochester Institute of Technology for Mechatronics. He has completed three courses in North Penn's Engineering Academy. He has been a member of the Model Aviation Club, is the President of the Engineering Projects in Community Service Club and is a member of the International Research Team.



Eric Qian nanoCARBON

Eric will be attending Penn State for Engineering undecided. He has completed five different courses in the North Penn's Engineering Academy. He was also involved in various different after school clubs, ranging from sports to culture. Outside of school, his hobbies include piano and violin, building things from paper to wood and building kits. He also works part time at a family own restaurant, helping out whenever he can.



Ethan William Spencer GyroStride Solutions

Ethan will attend Elizabethtown College and plans to major in Engineering starting in the fall. He has still not decided what kind of engineering he wants to pursue, but will figure that out as he progresses through college. He has completed five courses in North Penn's Engineering Academy. He has been a member of the Model Aviation Club for three years, and works part-time as a Lifeguard over the summer.



Evan Robert Spencer GyroStride Solutions

Evan will attend Elizabethtown College and plans to major in Engineering: Undecided starting in the fall. He has completed five courses in North Penn's Engineering Academy. He has been a member of the Model Aviation Club throughout all of high school. Outside of school, Evan works part-time as a lifeguard at The North Penn YMCA and The Fourth Street Pool.

2023- 2024 Engineering Design and Development Nanotechnology & Engineering Research Teams



Ryan Benjamin Shollenberger nanoCARBON

Ryan plans to attend The University of Pittsburgh with a major in material science and engineering. He has completed four courses in the Engineering Academy. He has had a total of five seasons between winter percussion, and the marching band.



Braden Toland Snow Espada Corps

Braden will be attending Embry-Riddle Aeronautical University to Major in Aerospace Engineering and a track in Astronautics. He has completed 6 of the engineering courses. He enjoys many tasks, from wood working and machine fabrication to expanding his knowledge through reading. On top of a passion for lifelong learning, he is an active officer in the Engineering Projects in Community Service club, and a member of North Penn's International Research Team.



John Albert Steelhammer I.R.I.S.

John is planning on attending Pennsylvania College of Technology, planning to major in Computer and Electrical Engineering. He has completed 5 courses in North Penn's Engineering Academy. He was a member of the Marching Knights for 2 years and a National Champion. He was also a member of the track and field team for 2 years along with other sports outside of school, such as soccer and basketball.



Mason Cole Stigler I.R.I.S

Mason is planning on attending Colorado State University to major in Mechanical Engineering. He has completed 5 courses in North Penn's Engineering Academy. He has been a member of the North Penn Marching Knights for 4 years and a member of the Auto Club for 1 year.



Sean Christian Tecklin Captalight

Sean will attend the Rochester Institute of Technology to major in Mechanical Engineering and Robotics. He has completed six Engineering Academy courses. He was an active member of the American Sign Language club in his Sophomore year and the President of the American Sign Language club in his Junior year. Due to the high interest in the club, North Penn took it upon themselves to introduce the new American Sign Language class.



Kaitlin Rose Vaccaro NitroPhix

Kaitlin will attend the University of Delaware this fall to pursue a degree in Chemical Engineering. She has completed four engineering courses in North Penn's Engineering Academy. In her free time, she volunteered at an animal rescue for farm animals, worked a part-time job at CVS, and has done boxing for four years.

Thank You Hitachi High-Tech America!

HITACHI

Inspire the Next

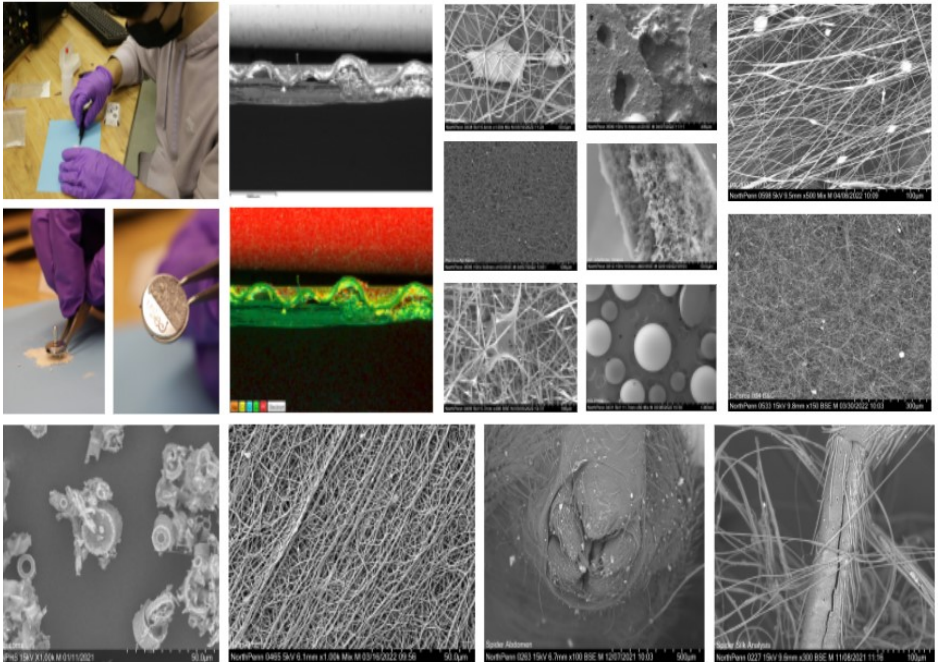
Inspire STEM Education Outreach Program



**THANK YOU FOR
GIVING VISION TO
OUR RESEARCH
ENDEAVORS!!!**

Lori Harvey | Senior Manager, STEM Education Outreach Hitachi High-Tech America
Summer Hamilton | Hitachi Inspire STEM Education Outreach Coordinator II

To learn more, please visit their website at:
www.InspireSTEMeducation.us



Thank You North Penn Educational Foundation!



**THANK YOU NORTH PENN EDUCATIONAL
FOUNDATION FOR YOUR
FINANCIAL SUPPORT!**

WE COULDN'T DO IT WITHOUT YOU!!!

The North Penn School District Educational Foundation, a 501c (3) corporation, is a collaborative effort among individuals committed to enriching the education and lives of more than 13,000 students in each of the North Penn School District's (NPSD) 18 schools, every single day.

Often referred to as "the Foundation," our mission is to motivate and inspire students and staff in the North Penn School District through innovative projects and opportunities that enhance educational experiences and resources.

To learn more about the foundation or to donate, please visit their website at:
www.npennedfoundation.org

ACKNOWLEDGEMENTS

THE FUTURE IS N.E.A.R.

ACKNOWLEDGEMENTS



We would like to thank the following individuals, companies and organizations for their invaluable support:

North Penn High School

Mr. Kyle Hassler, North Penn High School Principal
Tobe Hilbert and the North Penn Facilities personnel
Bob Gillmer, Craig Weierman, and Ryan Ruddell, North Penn Communications Media
Mark Keagy, Science Department
Denise Leach, Maggie deMarteleire, Patti Sell
NPHS Art Department
NPHS Technology & Engineering Department



Drexel University, Philadelphia, PA

Dr. Frank Ko
Dr. Edward Basgall
Dr. Kapil Dandekhar
Mrs. Joanne Ferroni



Queen Elizabeth's Grammar School, Faversham, England

Dr. James Perkins



University of California San Diego

Dr. Yves Theriault
Dr. Michael Sailor



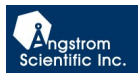
Hitachi High-Tech America

Lori Harvey
Summer Hamilton

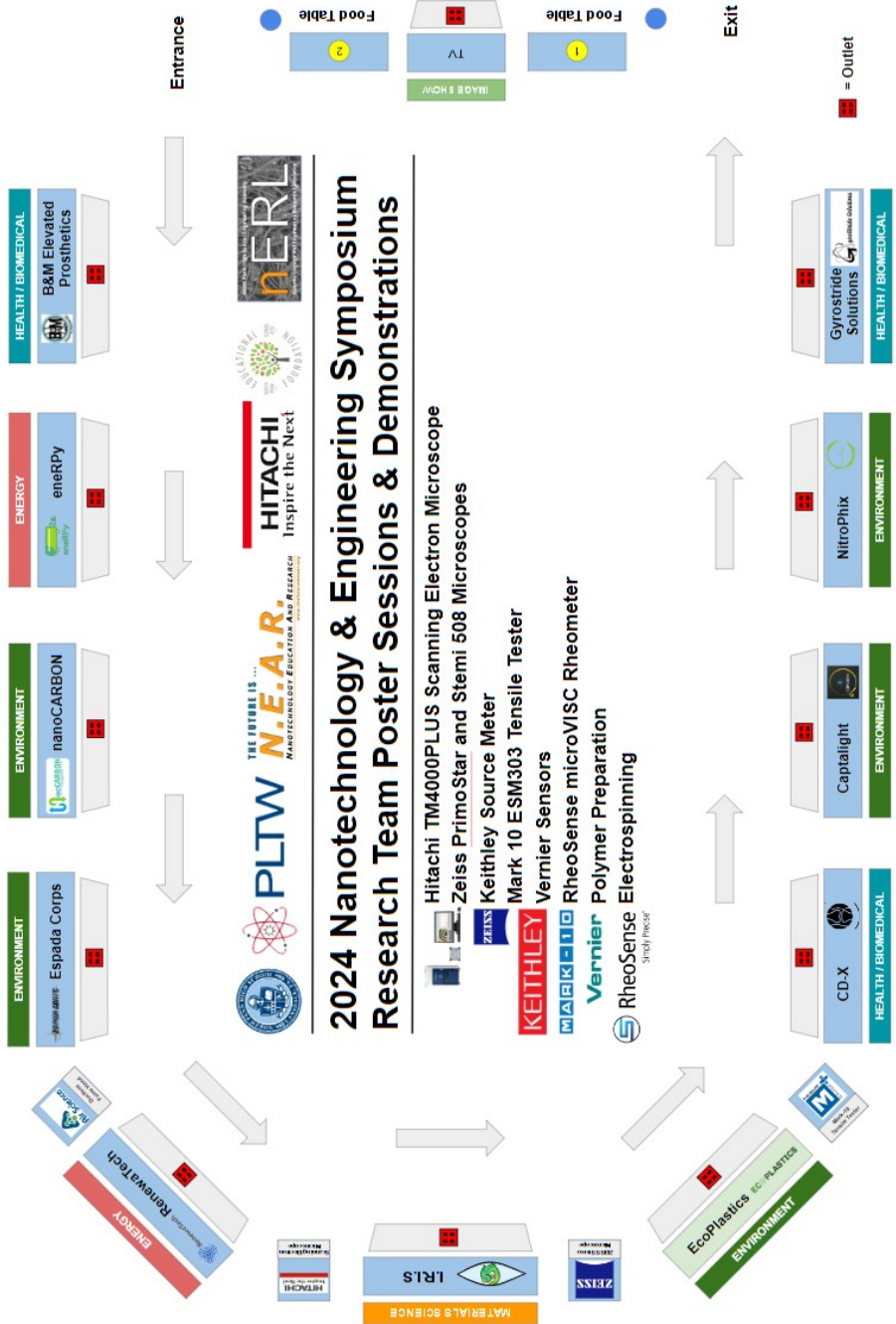


Angstrom Scientific

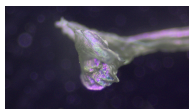
Evan Slow



Auxiliary Gymnasium Poster Session and Demonstrations



2023-2024 Nanotechnology and Engineering Symposium



Cover Image:

CD-X | Bacterial Cellulose, 6.3X, 04.19.2024



North Penn High School Engineering Academy
Nanotechnology and Engineering Research Laboratory (nERL)
1340 S. Valley Forge Road, Lansdale, PA 19446
www.TheFutureIsNEAR.org
boyerma@npenn.org
215.853.1325
www.thefutureisnear.org

