

73st Western Reserve District 5 Science Day – University of Akron -- 2021

WESTERN RESERVE DISTRICT 5 SCIENCE DAY



Prof. Ali Dhinojwala, Director

Department of Polymer Science
The University of Akron

John Fellenstein &
Laurel Lohrey, Coordinators
Akron Global Polymer Academy
The University of Akron

Sheila King, Co-Director

School Representative
Hudson Schools

Dan H. Jones, Sponsored Awards

Akron Council of Engineering &
Scientific Societies

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards
Behavioral & Social Sciences

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Behavioral and Social Sciences \$ 75

Second Place

Lauren Ravas

Behavioral and Social Sciences

The Stroop Effect Explored

Beaumont School-Cleveland Hts

Grade 9

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Behavioral and Social Sciences \$ 100

First Place

Ajay Krishnaney

Behavioral and Social Sciences

The Struggles of the Integration of Refugees Into
Local Communities

The University School-Chagrin Falls

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards

Biomedical and Health Sciences & Biomedical Engineering &
Translational Medical Science & Animal Sciences & Plant
Sciences

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Biomedical and Health Sciences &
Biomedical Engineering & Translational Medical Science &
Animal Sciences & Plant Sciences \$ 50

Third Place

Sohum Kapadia

Biomedical and Health Sciences

Morphology and Treatment Implications of the
Tricuspid Valve Changes in Patients with Mitral
Valve Disease

The University School-Chagrin Falls

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Biomedical and Health Sciences &
Biomedical Engineering & Translational Medical Science &
Animal Sciences & Plant Sciences \$ 75

Second Place

Jonathan Jang

Biomedical and Health Sciences
Analysis of Vitamin A Consumption of High
School Students During Quarantine
The University School-Chagrin Falls
Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Biomedical and Health Sciences &
Biomedical Engineering & Translational Medical Science &
Animal Sciences & Plant Sciences \$ 100

First Place

Kaitlyn Ernst

Biomedical and Health Sciences

The Effects of a Protein Nitrotyrosine Modification
on the Tumor Immune Microenvironment

Laurel School-Shaker Hts

Grade 9

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards

Category Award Biochemistry & Cellular and Molecular
Biology & Microbiology

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Biochemistry & Cellular and Molecular
Biology & Microbiology \$ 50

Third Place

Concetta Yormick

Microbiology

Tiny Titans: Can Silver Nano particles Neutralize
E. coli Bacteria?

St Paschal Baylon-Highland Heights

Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Biochemistry & Cellular and Molecular
Biology & Microbiology \$ 75

Second Place

Kavneer Majhail

Microbiology

The Effects of Ultraviolet Light on E. coli growth

The University School-Shaker Hts

Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Biochemistry & Cellular and Molecular
Biology & Microbiology \$ 100

First Place

Sunay Rastogi

Cellular and Molecular Biology
THE ROLE OF SERPINB3 ON
GLIOBLASTOMA CANCER STEM CELLS

The University School-Chagrin Falls

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards

Chemistry

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Chemistry \$ 50

Third Place

Adam Khan

Chemistry

The Effect of Different Solvents on Cholesteric
Liquid Crystals

Roosevelt HS-Kent

Grade 9

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Chemistry \$ 75

Second Place

Omar Elbadawy

Chemistry

Bioplastic: Relationship Composition, Flexibility

Birchwood School-Cleveland

Grade 7

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Chemistry \$ 100

First Place

Ryan McGinnis

Chemistry

Gelatinization and Hysteresis of Organic Compounds
to Create Edible Shelf Stable Adhesives

West Geauga HS-Chesterland

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards
Earth and Environmental Science &
Environmental Engineering

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Earth and Environmental Science &
Environmental Engineering \$ 50

Third Place

Abigail May

Earth and Environmental Sciences
The Effects of Agricultural Runoff From
Livestock on Water Quality
St Vincent St Mary-Akron
Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Earth and Environmental Science &
Environmental Engineering \$ 75

Second Place

Rachael Tomasko

Earth and Environmental Sciences

The potential of *Elophila oblitalis* larvae (waterlily
leafcutter moth) as a biological control for the
invasive aquatic plant *Nymphaoides peltata* (yellow
floating heart)

Padua Franciscan-Parma

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Earth and Environmental Science &
Environmental Engineering \$ 100

First Place

Abem Fetene

Earth and Environmental Sciences
Seaweed Carbon Sequestration
The University School-Chagrin Falls
Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards

Energy: Chemical & Energy: Physical
& Material Science

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Energy: Sustainable Materials and Design &
Material Science \$ 50

Third Place

Audrey Zorman

Materials Science

The Influence of Carbon-Black Concentration on the
Electrical and Mechanical Properties of a Silicone
Composite

Beaumont School-Cleveland Hts

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Energy: Sustainable Materials and Design &
Material Science \$ 75

Second Place

Destynn Keuchel

Materials Science

Improving the Antimicrobial and Filtration
Effectiveness of Face Masks

Hawken School-Gates Mills

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Energy: Sustainable Materials and Design &
Material Science \$ 100

First Place

Andrew Ciccotelli

Materials Science

Computational investigation of the
mechanochemistry of a helical zinc-bidipyrrin
complex

St Vincent St Mary-Akron

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards

Computational Biology and Bioinformatics &
Embedded Systems &
Mathematics &
Robotics and Intelligent Machines &
Systems Software

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Computational Biology and Bioinformatics &
Embedded Systems & Mathematics & Robotics and Intelligent
Machines & Systems Software \$ 50

Third Place

John Shin

Computational Biology and Bioinformatics
Developing COVID-19 Diagnostic Programs Using
Artificial Intelligence with Chest X-ray Data

Hawken School-Gates Mills

Grade 10

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Computational Biology and Bioinformatics &
Embedded Systems & Mathematics & Robotics and Intelligent
Machines & Systems Software \$ 75

Second Place

Nathan Mu

Computational Biology and Bioinformatics
Utilizing QSAR Models to Predict Biological
Molecule and Polymer Interactions

The University School-Chagrin Falls

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Computational Biology and Bioinformatics &
Embedded Systems & Mathematics & Robotics and Intelligent
Machines & Systems Software \$ 100

First Place

Jacob Rintamaki

Systems Software

Deep-Learning Analysis of Extreme Climate Events
to Predict Future Losses for Wheat in Kansas

Westlake HS-Westlake

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards
Engineering Mechanics

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Engineering Mechanics \$ 75

Second Place

Adharsh Narendrakumar

Engineering Mechanics
The Social Distancing Sensor
Birchwood School-Cleveland
Grade 7

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Engineering Mechanics \$ 100

First Place

Onyx Leasure

Engineering Mechanics

Pandemic Perfect: A Supply Cart for Social
Distancing and Safety

North HS-Akron

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Awards
Physics and Astronomy

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Physics and Astronomy \$ 50

Third Place

Abigail Detzel

Physics and Astronomy

Forensics: How Does the Height of the Drop
Affect A Blood Spatter's Diameter?

St Paschal Baylon-Highland Heights

Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Physics and Astronomy \$ 75

Second Place

Olivia Lewis

Physics and Astronomy
Magnetometers vs. Solar Storms
St Helen-Newbury
Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Physics and Astronomy \$ 100

First Place

Michelle Park

Physics and Astronomy

A Novel Method for Identifying Kepler Exoplanet
Habitability Using Python-Based Analysis of
Standardized Transit Light Curves and Calculated
Parameter Values

Solon HS-Solon

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Polymer Science Awards

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Polymer Science Award \$ 50

Third Place

Cecilija Rowane

Materials Science

Which brand of 100% Polyester Swimsuit out of the
Brands Jolyn, TYR, and Nike is Most Durable?

Beaumont School-Cleveland Hts

Grade 9

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Polymer Science Award \$ 75

Second Place

Audrey Zorman

Materials Science

The Influence of Carbon-Black Concentration on the
Electrical and Mechanical Properties of a Silicone
Composite

Beaumont School-Cleveland Hts

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Category Award Polymer Science Award \$ 100

First Place

Destynn Keuchel

Materials Science

Improving the Antimicrobial and Filtration
Effectiveness of Face Masks

Hawken School-Gates Mills

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Sponsored Awards

Daniel H. Jones

Akron Council of Engineering & Scientific
Societies

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Sponsored Awards

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ACCESS - Akron Council of Engineering & Scientific Societies
\$50 for Best High School Project – First Place

Audrey Zorman

Materials Science

The Influence of Carbon-Black Concentration on
the Electrical and Mechanical Properties of a
Silicone Composite

Beaumont School-Cleveland Hts

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ACCESS - Akron Council of Engineering & Scientific Societies
\$50 for Best High School Project – Second Place

Destynn Keuchel

Materials Science

Improving the Antimicrobial and Filtration
Effectiveness of Face Masks

Hawken School-Gates Mills

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ACCESS - Akron Council of Engineering & Scientific Societies
\$50 for Best Middle School Project – 1st Place

Omar Elbadawy

Chemistry

Bioplastic: Relationship Composition, Flexibility

Birchwood School-Cleveland

Grade 7

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ACCESS - Akron Council of Engineering & Scientific Societies
\$50 for Best Middle School Project – 2nd Place

Matthew Pafford

Physics and Astronomy

Investigating the Effect of Potential Energy on
Airplane Flight

Incarnate Word Academy-Parma Hts

Grade 7

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ACS - American Chemical Society
ACS BEST Chemistry Award - High School \$ 100

Ryan McGinnis

Chemistry

Gelatinization and Hysteresis of Organic
Compounds to Create Edible Shelf Stable
Adhesives

West Geauga HS-Chesterland

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ACS - American Chemical Society
ACS BEST Chemistry Award – Middle School \$ 100

Diego Coutino Granados

Chemistry

Chocolate Soft Lithography.

Stanton MS-Kent

Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ASME - American Society of Mechanical Engineers (Akron section)
\$50 Best MS Mechanical Engineering Project

Samuel Mather

Engineering Mechanics

HAK Sink or Float 2

Menlo Park Academy-Cleveland

Grade 6

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ASME - American Society of Mechanical Engineers (Akron section)
\$50 Best MS Mechanical Engineering Project

Mahee Shah

Engineering Mechanics

The Effect of Piston Ratio Contrasts on the
Optimum Height of a Hydraulics Model

Hathaway Brown-Shaker Hts

Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ASQ - American Society for Quality – section 810
Best Use of Statistics

Dylan Berr

Environmental Engineering

Strengthening Hydrophilic, Biodegradable
Materials Using Chitosan and Cellulose

The University School-Chagrin Falls

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ASQ - American Society for Quality – section 810
Best Use of Statistics

Michelle Park

Physics and Astronomy

A Novel Method for Identifying Kepler Exoplanet
Habitability Using Python-Based Analysis of
Standardized Transit Light Curves and Calculated
Parameter Values

Solon HS-Solon

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ASQ - American Society for Quality – section 810
Best Use of Statistics

Nicholas DiTirro

Systems Software

Comparing the Effectiveness of Password Policies
Using Statistical Analysis

The University School-Shaker Hts

Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ASQ - American Society for Quality – section 810
Best Use of Statistics

Rachael Tomasko

Earth and Environmental Sciences

The potential of *Elophila oblitalis* larvae (waterlily leafcutter moth) as a biological control for the invasive aquatic plant *Nymphoides peltata* (yellow floating heart)

Padua Franciscan-Parma

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ASQ - American Society for Quality – section 810
Best Use of Statistics

Carlirina Andrada

Biomedical and Health Sciences

Maintaining Sobriety based on the Change in
Treatment Program and the Ability to Regain Access
to Treatment of Opioid Use Disorder in the Midst of
COVID-19

Mentor HS-Mentor

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ASQ - American Society for Quality – section 810
Best Use of Statistics

Jacob Rintamaki

Systems Software

Deep-Learning Analysis of Extreme Climate
Events to Predict Future Losses for Wheat in
Kansas

Westlake HS-Westlake

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ONR - Office of Naval Research
\$50, Certificate & Medallion - High School

Alex Kmetko

Materials Science

Supporting a Wing with Hexagons in Order to
Make It Lighter and Stronger

The University School-Chagrin Falls

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ONR - Office of Naval Research
\$50, Certificate, & Medallion - High School

Jae-Hoon Smith

Physics and Astronomy

The Effect of Different Fin Geometries on the
Flight of a Rocket

The University School-Chagrin Falls

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ONR - Office of Naval Research
\$50, Certificate, & Medallion - High School

Audrey Zorman

Materials Science

The Influence of Carbon-Black Concentration on
the Electrical and Mechanical Properties of a
Silicone Composite

Beaumont School-Cleveland Hts

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ONR - Office of Naval Research
Certificate & Medallion - Middle School

Omar Elbadawy

Chemistry

Bioplastic: Relationship Composition,, Flexibility

Birchwood School-Cleveland

Grade 7

73st Western Reserve District 5 Science Day – University of Akron -- 2021

ONR - Office of Naval Research
Certificate & Medallion - Middle School

Daniel Maddox

Chemistry

Cracking the Code of Corrosion: The Effects of
Liquid Solutions on the Corrosion of Iron

St Raphael-Bay Village

Grade 6

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Society of Plastics Engineers - Akron Chapter,
Best Plastics Project \$50

Audrey Zorman

Materials Science

The Influence of Carbon-Black Concentration on
the Electrical and Mechanical Properties of a
Silicone Composite

Beaumont School-Cleveland Hts

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Society of Plastics Engineers - Akron Chapter,
Best Plastics Project \$50

Nik Vucenovic

Materials Science

Alternative Drying Techniques of Silica Aerogels

The University School-Chagrin Falls

Grade 10

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Society of Plastics Engineers - Akron Chapter,
Best Plastics Project \$50

Aanya Lakireddy

Environmental Engineering
Filtering Micro Plastics Using Micron Nylon
Filter

Birchwood School-Cleveland

Grade 7

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Ohio Tuition Trust Authority Winner Grades 5,6,7 or 8 \$ 250

Primary Award

Nicholas DiTirro

Systems Software

Comparing the Effectiveness of Password Policies
Using Statistical Analysis

The University School-Shaker Hts

Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Ohio Tuition Trust Authority Winner Grades 5,6,7 or 8 \$ 250

Primary Award

Isabelle Strobel

Biomedical Engineering

Alice's Arm: Building a Myoelectric Prosthetic In
Honor of a Friend

National Inventor's Hall of Fame MS-Akron
Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Ohio Tuition Trust Authority Alternates Grade 5,6,7.8

Alternate - \$25 and up to \$250

Leland Fan

Energy: Sustainable Materials and Design

Fruit Energy

Menlo Park Academy-Cleveland

Grade 5

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Ohio Tuition Trust Authority Alternates Grade 5,6,7.8

Alternate - \$25 and up to \$250

Claire Kinkelaar

Biochemistry

HEAT IT UP! How heat affects proteolytic enzymes.

St Sebastian-Akron

Grade 8

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Governor's Award Information Science and Technology Research

Michelle Park

Physics and Astronomy

A Novel Method for Identifying Kepler Exoplanet
Habitability Using Python-Based Analysis of
Standardized Transit Light Curves and Calculated
Parameter Values

Solon HS-Solon

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Governor's Award Advanced or Alternative Energy

Josephine Smyser

Energy: Sustainable Materials and Design

Paddling My Way to Science Fair

Beaumont School-Cleveland Hts

Grade 10

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Governor's Award Biotechnology / Biomedical Technology

Ella Pugh

Biomedical and Health Sciences

The Effect of Particulate Matter 2.5 on Asthma
Symptoms

Mentor HS-Mentor

Grade 12

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Governor's Award Advanced Materials

Alex Kmetko

Materials Science

Supporting a Wing with Hexagons in Order to
Make It Lighter and Stronger

The University School-Chagrin Falls

Grade 11

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Outstanding School Awards

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Outstanding Middle School

The University School-Shaker Hts

73st Western Reserve District 5 Science Day – University of Akron -- 2021

Outstanding High School

The University School-Chagrin Falls