

# I-SWEEEP 2009 Category Awards

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SENIOR DIVISION

JUNIOR DIVISION

Gold Medalists received \$1,000.00 award.

Silver Medalists received \$750.00 award. Bronze Medalists received \$500.00 award. Honorable Mention \$200.00 award.

Gold Medalists received \$500.00 award. Silver Medalists received \$300.00 award. Bronze Medalists received \$200.00 award. Honorable Mention \$100.00 award.

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## GRAND AWARD WINNERS

Category  
Country  
State  
Contestants  
Project Title

Senior Energy  
UNITED STATES  
New York  
Sujay Tyle  
The Sustainable Development of Ethanol from Biomass via Genes of Clostridia

Senior Engineering  
CHINA

Zhangxiaowen Gong  
A Vehicle Biker Detection System

Senior Environment  
UNITED STATES  
Minnesota  
Xin Li

Verification and characterization of sugar-response Arabidopsis mutant gte4 for higher biofuel and soy protein production

Junior Energy  
UNITED STATES

Connecticut

Bridget Oei

Piezoelectric Tiles: A Novel Approach to Harvesting Vibrations as a Renewable Energy Source

Junior Engineering

UNITED STATES

Texas

Faiza Tayyab

Sound Economics

Junior Environment

UNITED STATES

Oregon

Naomi Shah

Sustainable Indoor Air Quality: The Impact of Airborne Particulate Matter, Carbon Monoxide, Carbon Dioxide, and Volatile Organic Compound levels on the Peak Expiratory Flow of Asthmatic Subjects

{tab=Senior Energy}

#### GOLD MEDAL WINNERS

Country

State

Contestant(s)

Project Title

UNITED STATES

New York

Sujay Tyle

The Sustainable Development of Ethanol from Biomass via Genes of Clostridia

UNITED STATES

Texas

Qingliu Yang, Elisa Lin

It's (Not) Easy Being Green: A Novel Approach to Enhance Efficiencies and Performance of Organic Solar Cells and OLEDs by Incorporating Multiwalled Carbon Nanotubes

UNITED STATES

Washington

Jennifer Kang

Improving the Hydrolysis Process for Making Cellulosic Ethanol

UNITED STATES

New York

Maximilian Epstein

Converting Levulinic Acid from Cellulosic Waste into a Biofuel

UNITED STATES

Texas

Lyric Gillett

## A Novel Method For Measuring Sonoluminescent Spectra

UNITED STATES

Texas

Kristen Carroll, Katherine Frangos

Hooked on Hydrogen

UNITED STATES

Colorado

Kelci Garcia

Parabolic Solar Desalination for the Developing World

CAMBODIA

-

Manin Sam Ang

A Kind of Hollyhock invention to diesel: What's Work?

SOUTH AFRICA

-

Ruco Pretorius

Restaugester and Anaerobic Digestion for Restaurants & Hotels

DENMARK

-

Hanne Binder, Jesper Rasmussen

Production of the Green Gold: Optimized growth conditions and new, efficient harvest methods for algae

## SILVER MEDAL WINNERS

Country

State

Contestant(s)

Project Title

UNITED STATES

Texas

Elizabeth Quigley

'Round and 'Round it Goes 2: Measuring the Torque of Winglets

UNITED STATES

Iowa

Pavane Gorrepati

Warning about Warming: Innovative Fuel Cells for the 21st Century - A Performance Study of the Proton Exchange Membrane, Reversible, and Direct Methanol Fuel Cells Under Multiple Operating Conditions

UNITED STATES

Texas

Brynn Umbach, Jiayi Kong

Energy's Orchard

UNITED STATES

Texas

Neil Redfield

The Garage of the Future: Maximizing the Economic Value of Solar Panels

UNITED STATES

New York

Jordan Boucicaut

Microbial Fuel Cells: Harvesting Reusable Energy from Organic Matter

UNITED STATES

Kentucky

Kartik Malhotra

From Rust to Hydrogen: A Green Approach

UNITED STATES

North Carolina

Abram Detwiler

Practical Power: The Solar Concentrator Solution for Low Cost Energy

CANADA

-

Bekir Buyukkocabas, Kanan Suleymanov

Waste Coffee Bean Miracle

UNITED STATES

New York

Natalie Alberman, Sofya Kalantarova

Analysis of chlorophyll content of dkg-1 strains of *C. richardii*: a novel approach to improving plant biomass

UNITED STATES

Louisiana

Caleb Gestes

Light Intensity and Ambient Temperature vs. Solar Cell Output

DENMARK

-

Rasmus Hilbert Jensen

Polishing the Green Gold: Optimizing the process from algal biomass to biodiesel

UNITED STATES

Texas

Vybhavi Bharadwaj

Killing Phantom Power to Mitigate Global Warming: The Effect of Appliance Type and Temperature on Percentage of Phantom Power Consumption, Carbon Dioxide Emissions and Financial Savings

MACEDONIA

-

Stefan Kuzmanovski, Nikolce Kolev

Using aquatic species in the production of biodiesel

UNITED STATES

Utah

Kelsey James

Generation of Electricity from Elemental Influences and Periodic Ocean Wave Oscillation

UNITED STATES

Texas

Wenxi (sheryl) Li

Algae - The Green Fuel: The Effects of Different Amounts of Nitrogen on the Quantity of Lipids Extracted from Algae

INDONESIA

-

Reza Dwiaji, Luthfi Rais

NEW DEVICE FOR GETTING MAXIMUM BENEFIT FROM SOLAR ENERGY

CANADA

-

Eden Full

Dynamic Photovoltaics &ndash; The Sustainable SolArray: A Novel Self-Tracking Passive Photovoltaic Diode Orientation System

PHILIPPINES

-

Rowell Castro, Jereel Aron Sahagun

Preparation of SnO<sub>2</sub> Nanomaterial Using Vacuum Evaporation Technique for Photocell Application

GHANA

-

Edmund Oppong

Wave Power

BRONZE MEDAL WINNERS

Country

State

Contestant(s)

Project Title

UNITED STATES

Arizona

Kelsey Waite

The Effects of Light Intensity on the Development of Photosynthetic Apparatus in Green Algae, *Chlamydomonas Reinhardtii*

UNITED STATES

Minnesota

Christina Serena

Designing a Small Scale Wind Turbine for Low Wind Speed Areas: Phase II

UNITED STATES

Arkansas

Adiba Matin

Alternative Fuel Energy

UNITED STATES

Oregon

Staci Sherer, Victoria Callaway

Utilizing Whey Powder for the Production of Ethanol

UNITED STATES

Texas

Brian Stutzman

Wave Energy Extraction II

UNITED STATES

New Mexico

Jeffrey Trujillo

An Unlikely Fuel Source

FRANCE

-

Etienne Lalique, Axel Talon

The solar balloon : Phaeton

PAKISTAN

-

Raja Ahsan Mehmood

GLAMOUR GLORY CAR

UNITED STATES

Minnesota

David Troska

Quantative analysis of an H-shaped Darrieus wind turbine near road systems.

UNITED STATES

Texas

Nikhil Kapur

An Analysis and Application of the Stirling Engine

UNITED STATES

Minnesota

Michael Fuad

Harvesting microalgae (*Chlamydomonas reinhardtii*) for biofuel production using wastewater treatment techniques

UNITED STATES

Oregon

Aishwarya Vardhana

A Linear Programming Model for Optimal Renewable Energy Consumption

UNITED STATES

Texas

Grant Gilbert

Effects of Wireless power transmission

UNITED STATES

Minnesota

Elaina Hamann

Can Algae Be Converted Into Biodiesel?

CAMBODIA

-

Ayuwath Kuy

WASTE COFFEE GROUND BIODIESEL

UNITED STATES

New Mexico

Cesar Soria Jimenez

Enhancing Photovoltaics through the Incorporation of Algae

UNITED STATES

Virginia

Razvan Untaroiu

The technology of a greener tomorrow

UNITED STATES

Texas

James Fritz

Is Your Refrigerator Running....Efficiently?

PARAGUAY

-

Corinne Wendy Centeno Espinoza, Tania Araceli Leon Arevalos

BUYATAY "Ecological and economically profitable option for the optencion of the biodiesel"

AZERBAIJAN

-

Fakhri Suleymanli, Rafet Mikayilov

ALUMINIUM-AIR BATTERY

UNITED STATES

Pennsylvania

Joseph Rudy

Improving the Efficiency of Solar Cells: A Study Of Photovoltaics

UNITED STATES

Texas

Nathan Nissen

A Dye-Sensitized Solar Cell Construction and Analysis

UNITED STATES

Washington

Akshai Baskaran

Optimizing the Growth of Nannochloropsis Oculata Microalgae for Production of Biofuels

AZERBAIJAN

-

Nemat Ibrahimkhanli, Aziz Mamadli

Mini Cooler

UNITED STATES

Florida

Katherine Stone

What a Drag 2: A Study of the Effects of the Fluid Dynamics of a Wind Turbine

UNITED STATES

Georgia  
Kenneth McGill  
Design of a Low Cost and Efficient Electrolyzer

MOLDOVA

-  
Eugene Godunov, Nicolae Nistor  
Interseasonal accumulation of solar heat

THAILAND

-  
Piyaraj Waisayanuwat, Phornphit Manageracharath  
Rotational Step Water Solar Still

HONORABLE MENTION WINNERS

Country  
State  
Contestant(s)  
Project Title

UNITED STATES

Colorado  
Morgan Hart  
RENEWABLE^3: Water, Wind, and Solar - a Portable and Renewable Energy Source for Today's Technology

UNITED STATES

Minnesota  
Max Keller  
Decomposing Energy

UNITED STATES

Iowa  
Ethan Erickson  
Algae: Fuel of the Future - Phase II

UNITED STATES

Texas  
Cameron Thomas  
Metabolic Engineering of a 1,2-Propanediol Pathway in E.Coli

UNITED STATES

Wyoming  
Leah Hoblit  
Utilization of Hot Springs Bacterial Populations to Enhance Cellulose Fermentation

UNITED STATES

Florida

Ian Peterson  
Wind Energy

UNITED STATES  
Illinois  
Cyatharine Alias  
Bacteria Fueled Biofuels

UNITED STATES  
Georgia  
Lauren Cameron  
Chlorella as an Alternative Fuel

POLAND  
-  
Piotr Smolko  
WIND MICROFARM

CHINA  
-  
Fei Chen  
A new energy-saving air condition water heater

KAZAKHSTAN  
-  
Saur Kopbaev, Zharaskhan Sariyev, Sanzhar Ainabek  
Linear Single Phase Flow simulator for a slightly compressible fluid of constant viscosity with multiple wells.

UNITED STATES  
Texas  
Robert Landis  
Efficient Concentrators For Solar Cell Systems II

LAOS  
-  
Phetnary Souvannarath, Pathummaly Phommachanh  
Introducing an incredible curtain which can save and produce electric energy

UNITED STATES  
Texas  
Julie Loyd, Rabia Ali  
Advancing Society to a More Sustainable Environment with Agriculture Residues. *Saccharomyces Cerevisiae*,  
*Aspergillus Niger*, and *Clostridium Sporogenes*

UNITED STATES  
Arizona  
James West  
The Effect of Ether based diesel, B99, and Vegetable Oil Alternative Emissions on the pH of soil

PUERTO RICO  
-  
Enrique Cardenas-sifre  
Three renewable Sources of Energy in a Single Electrical Plant for a better Planet

UNITED STATES

Oregon

Anshu Tirumali

The Production of Hydrogen by Exposing Aluminum-Gallium Alloys to Water

UNITED STATES

Texas

Anastasia Anazonwu

Flash Points and Fuels

AFGHANISTAN

-

Omid Mohammad Hakim

Contribution of wave electricity

TURKEY

-

Murat Tanriseven, Omer Findik

environmentally friendly biodiesel production from sunflower oil

UNITED STATES

Iowa

Furkan Pecen, Erik Olsen

Reengineering Holmes Junior High School with a Novel Energy Efficiency

{tab=Junior Energy}

GOLD MEDAL WINNERS

State

Contestant(s)

Project Title

Connecticut

Bridget Oei

Piezoelectric Tiles: A Novel Approach to Harvesting Vibrations as a Renewable Energy Source

Texas

Travis Howk

Creating an Effective Bio-Battery with *Geobacter metallireducens*

Texas

Alex Crisara

Pressure Supplemented Hydrogen Production

SILVER MEDAL WINNERS

State  
Contestant(s)  
Project Title

Texas  
Robert Nelson  
It's Cold In Here II

North Carolina  
Nicole Shaw  
&ldquo;Evaluating and Comparing the Energy Content of Animal Feed Stock and Home Compost Using the Process of Anaerobic Digestion&hellip;&rdquo; The Power of Poop!

New Mexico  
Anjik Ghosh  
The Efficiency of Vertical Axis Windmills at Different Wind Speeds

North Carolina  
Zebulon Amrol-davis  
"Cool Energy"

Texas  
Narahari Bharadwaj  
The Green Car: The Effect of the Wattage and Size of a Solar Panel, and the Weight of a Solar Car on the Speed and Efficiency of the Solar Car

#### BRONZE MEDAL WINNERS

State  
Contestant(s)  
Project Title

Texas  
Manu Bhanot Bhanot, Dustin Brownlow  
The role of separators on the life of lead acid batteries

Texas  
Piper Reid  
Using Energy from the Sun, What Method Will Heat/Keep in Heat for a Model Pool? (Do solar covers work?)

Texas  
Justyn Fitz  
Processor Cache Performance

Arizona  
Bogdan Racolta  
Biofuels from algae?

Arkansas

Jacob Brown

Quantitative measurement of hydrogen gas in a reversible PEM fuel cell powered by solar energy. Measurements in hydrogen generated power.

Indiana

Jason Molitsky

Designing and Constructing Practical, Small-Scale Solar Heat Exchangers

Georgia

Raja Selvakumar

Energy Crisis: Flaming Fuels

Georgia

Daniel Dorminy

Maximizing Electrical Output by Optimizing Wind Turbine Blades

Arizona

Stan Palasek

Metabolic Comparison of Carbohydrates

#### HONORABLE MENTION WINNERS

State

Contestant(s)

Project Title

Arizona

Joshua Sloane, Ostin Zarse

Upping the Power: Can reflective materials be cost effective while increasing the output of photovoltaic cells?

South Dakota

Alyson Roth, Emily Mudder

Creating A Drier Washer

Oregon

Sophie Louaillier, Molly Kemball

Algae Based Biofuel

Texas

Pradhith Konduri

A bright future

Texas

Melike Ekren, Elsie Gutierrez

Blue Energy

Texas

Lydia Bickham

Economical Power Source of the Future

{tab=Senior Engineering}

## GOLD MEDAL WINNERS

Country  
State  
Contestant(s)  
Project Title

### CHINA

-

Zhangxiaowen Gong  
A Vehicle Biker Detection System

### UNITED STATES

New York

Samantha Larsen, Cole Blum

Sunscreen: A Catch 22: Blocking of the photocatalytic activity of titanium dioxide nanoparticles by polymer coating

### UNITED STATES

Wisconsin

Philip Streich, Michael Cherkassky

Graphene: First Practical Production and Applications of a Green Supermaterial

### UNITED STATES

Minnesota

Anushua Bhattacharya

Smart Fluids: From Automotives to Healthcare

### UNITED STATES

Minnesota

Jeffrey Fahland

An Investigation into Excess Energy Recycling Within a Solar Distillation Process

### UNITED STATES

New York

Irsal Alsanea, Julia Budassi

A method of discriminating between double-stranded and single-stranded DNA on combed surfaces

### SOUTH AFRICA

-

Sune Gerber

Propeller Efficiency

### UNITED STATES

Ohio

Julianne Golinski  
Neural Stem Cell Migration in Response to Chemokines

CHINA

-

Junming Zhu  
Precaution System for Being Drowned in the Natatorium

UNITED STATES

Texas

Ryan Alexander

Gone with the Windmills:An Analysis of the Effectiveness of an Oscillating Wind Energy Generator

SILVER MEDAL WINNERS

Country

State

Contestant(s)

Project Title

UNITED STATES

New Mexico

Adam Akkad

Display of Specific and Random Peptides on Virus-like Particles of MS2 Bacteriophage for Materials Science and Biomedical Applications

UNITED STATES

Pennsylvania

Ellen Bechtel

Thermal Property Differences as a Method of Humanitarian De-Mining

TURKEY

-

Barkin Alaybeyoglu, Aziz Burak Eroglu

Determining Enzymatic Deinking Conditions and Recycling of Paper with Flotation

SOUTH AFRICA

-

Jacob De Coning

THE RUMBLE-STRIP ELECTRICAL POWER GENERATOR

UNITED STATES

Texas

Amy Chyao

Keep Your Distance

MALAYSIA

-

Muhammad Izzat Ab. Rakib, Mohammad Asraf Mohd Jaki

PRODUCTION OF CITRONELLYL PALMITATE IN PACKED BED REACTOR USING IMMOBILIZED LIPASE

UNITED STATES

Texas  
David Lebsack  
The War on Gas Mileage 2

SOUTH KOREA

-  
Young Kun Ko  
Mathematical Characterizing and 3D modeling of Ladybug using two dimensional images and applications

MONGOLIA

-  
Bayasgalan Tsend-ayush  
Sign Language Book

UNITED STATES

Ohio  
Elizabeth Kilbane  
The Effect of Toluene on the L1-Mediated Activation of ERK 1 and 2

UNITED STATES

Texas  
Amruth Venkatraman, Navaneeth Ravindranath  
Novel Control Methodologies for Conserving Energy with Electrochromic Windows

MALAYSIA

-  
Nurliyana Mohd Rosli, Maryam Zainal Ariffin  
Synthesis of beta-TCP from Anadara granosa

UNITED STATES

North Carolina  
Taylor Courier  
Mobile Autonomous Robotic Sensing System (MARSS)

UNITED STATES

Florida  
Raymond La  
The Development of an Environmentally Safe Insecticide Using the Chemical Extracts of Common Yard Plants and Weeds

PHILIPPINES

-  
Hannah Carize Sangalang, Simon Anthony Lorenzo  
Development of Carbon Nanomaterial As An Electrode Voltage Source

MALAYSIA

-  
El Insyiraah Fathin Amiruddin, Madihah Zuhari  
PADDY CHAFFS IN ADSORPTION OF COPPER (II) AND LEAD (II) IONS IN THE SOLUTION OF PALM OIL MILL EFFLUENT

## BRONZE MEDAL WINNERS

Country  
State  
Contestant(s)  
Project Title

UNITED STATES  
Arkansas  
Siteng Ma  
Design and Fabrication of Low Cost Nano-Structured Solar Cell

UNITED STATES  
Texas  
Rounok Joardar  
Development of a Novel High Efficiency Photo-Thermovoltaic Concentrator Solar Cell

UNITED STATES  
Texas  
John Roberts  
Gas Wall II

MEXICO  
-  
Quiróz David Alonso  
Recognition vehicle under various conditions

UNITED STATES  
Oklahoma  
Jason Lugo  
Fractal Complexity: Unveiling Irrational Points and Beyond within the Mandelbrot Set

TAJIKISTAN  
-  
Sakhobiddini Nazarzoda, Olim Hakimzoda  
A Mathematical Approach to Multiple Dose Model in Two-Compartmental Drug Delivery System

UNITED STATES  
New York  
Harrison Digia, Harry Kucharczyk  
Better MPG Through Dimpling

SOUTH KOREA  
-  
Been Na Lee  
The Development of New System : Size Selective Separation System of Silver Nano Particle Using Porous Materials

UNITED STATES  
Texas  
Kenneth Marino  
Biomimicry of *E. fuscus*: Autonomous Robotic Navigation

UNITED STATES

South Carolina

Arjun Aggarwal

Can the concept of Equilibrioception be applied in robotics?

UNITED STATES

Indiana

Chelsea Arthur

Using Glass as a Catalyst for Diesel Particulate Filters

UNITED STATES

Wisconsin

Susan Huang

Fabrication of Micro-Structured Stencils to Study Biofilm Formation

UNITED STATES

Louisiana

Ashley Spooner

What's In Your Concrete?

UNITED STATES

Georgia

Sarah Pace

Production of Microchips from Polystyrene Plates

UNITED STATES

New Jersey

Rosemary Wang

Bend without Breaking III

UNITED STATES

Texas

Karam El-hallaq

Underground Air Conditioning

UNITED STATES

Texas

Neriman Cavdar

Thermal Transport Phenomena in Nanofluids

UNITED STATES

Georgia

Abigail Lewis

Analysis of Nanofiber-based Scaffolds

UNITED STATES

Texas

Richard Tran

Carbon Nanotube Filtration

ALBANIA

-

Ergent Birbo, Mario Pojani

An Alternative Additive to Mortar:SEASHELL

UNITED STATES

Maryland

Kevin Hogan, Manpreet Khural

The Impact of the Incorporation of Local Energy Storage into a Representative Model Power Grid

UNITED STATES

Minnesota

Michael Crump

Engineering thin-layer organic solar cells using a novel tri-layer architecture

KYRGYZSTAN

-

Bakyt Abdraimov

Analysis of fullerenes: Usage of C60 as a protector

JORDAN

-

Abd Al Raouf Rawabdeh

a design that minimizes the consumption of fuel in cars

UNITED STATES

Texas

Narmeen Husainat

The Effects of three Photoinitiators on the Mechanical Properties of PEGDA Hydrogels

HONORABLE MENTION WINNERS

Country

State

Contestant(s)

Project Title

UNITED STATES

Texas

Vibhu Chittajallu

Baby On Board

UNITED STATES

Texas

Christopher Winnier-cline

Wireless Energy Transfer

UNITED STATES

Texas

Alyssa Bennett

Sandbar Generation Through Pier Arrangement

UNITED STATES

North Carolina

Xavier Joyner

The Constrained Crystallization and Nucleation Capability of Nylon 6 Chains Protruding from Non-Stoichiometric Nylon 6:α; Cyclodextrin-Inclusion Compounds

UNITED STATES

Texas

Tyler Mrosko

Propeller Dimensions and the Impact on Thrust and Static Airspeed

UNITED STATES

Texas

Xinyu Cao

Bioinformatic Analysis of Pseudomonas Chlororaphis 201phi2-1 Bacteriophage Gene Expression

ROMANIA

-

Birkan Ismail, Tapus Radu

T-SPEAK

SLOVAKIA

-

Peter Rakyta

Study of the effects of three human antioxidative genes under the eukaryotic (CMV) promoter during oxidative stress model in Escherichia coli

UNITED STATES

Kentucky

Marylynne Anderson-cooper, Logan Jackson

CONCRETE: What Is It Good For? Absolutely EVERYTHING!!

KAZAKHSTAN

-

Janerke Tagabergenova, Gulzhaz Faizullakzy, Gulzhainar Karabalayeva

The technology of manufacture of thin film scintillation detectors on the basis of cesium iodide

MACEDONIA

-

Gulardina Ramadani, Jeta Avdiu

CHEMICAL DEPOSITION OF QUANTUM-SIZED SEMI-CONDUCTING THIN FILMS OF ANTYMONY(III) SELENIDE-Sb<sub>2</sub>Se<sub>3</sub>

MOLDOVA

-

Sorin Tontici, Nicolae Ghetiu

Future's 3rd generation engine

SLOVAKIA

-

Matus Tomlein

Synkron - an application for folder synchronisation

CHINA

Zhiwen Shen, Shuowen Shen

Research on Automatic Parking System Controlled by Mobile Phone

UNITED STATES

Iowa

Tracy Older

CO2 Emmisions Filtration System Using Lithium Hydroxide Grease and Zeolite: Phase II

UNITED STATES

Missouri

Joshua Murphy

Pumping Stream Water to Higher Altitudes : Water Hummer Pump

UNITED STATES

South Dakota

Nicole Dejong

Valuable Volume

PHILIPPINES

-

Raida Rajan, Ismahan Amil

Printing and Writing Ink Formulations from Used Engine Oils

UNITED STATES

North Carolina

Victoria Jones

Modification of Transfer Ribonucleic Acid (tRNA): The Binding of tRNA by YrdC, a Putative Threonyl-tRNA Transferase

CAMBODIA

-

Pichny Huot

The New Origination Of Metropolis Phnom Penh

UNITED STATES

Georgia

Kathryn Johnson, James Rives

Carbon-Neutral Conversion of Atmospheric CO2 into Synthesis Gas

CZECH REPUBLIC

-

Pavel Sthyrba, Filip Subert, Tuan Anh Ly

Introducing Youth with Robotics

{tab=Junior Engineering}

GOLD MEDAL WINNERS

State

Contestant(s)

Project Title

Texas

Faiza Tayyab

Sound Economics

Texas  
Kishore Balasubramanian  
Increasing the Efficiency of Targeted Drug Delivery In Treating Cancer Using Ferrofluid And Magnetic Field

#### SILVER MEDAL WINNERS

State  
Contestant(s)  
Project Title

Texas  
Samuil Borisov, Roman D.c.  
Sustainable Computing

Pennsylvania  
Marian Bechtel  
A Seismo-Acoustic Method for Detection and Discrimination of Landmines

Maryland  
Jack Andraka  
Can we stop the drowning machine? Retrofitting low head dams for safety

Texas  
Paul Huron Iv  
Computer Vision "The Year 2058"

#### BRONZE MEDAL WINNERS

State  
Contestant(s)  
Project Title

Minnesota  
Nick Schmall  
Reduce, Reuse, Reconstruct

Texas  
Aileen Huang  
Encrypting Chaos

Texas  
Sarah Akbani  
Disk Stabilized Emulsions

Texas  
Shari Rohret  
Stimulating Growth in Phaseolus lunatus Using a Low Amperage Current on their Fibrous Root Systems

Texas  
Zachary Hanzel  
Perpetual Motion

Oregon  
John Connall, Hailey Kern  
The Blades

#### HONORABLE MENTION WINNERS

State  
Contestant(s)  
Project Title

Texas  
Druck Green  
Supervisory Fuzzy Logic Control of Isolated Buildings Utilizing Piezoelectric Friction Dampers

Texas  
Shifa Abuzaid, Steven Dang  
Which Reinforcement Method Best Reduces Ststructural Damage To A Building During An Earthquake?

Florida  
Andrew Davis, Mark Singh  
NEW WIND TURBINE DESIGN

Oregon  
Katherine Reinders, Harper Hayes  
Iron Women: A Study of the Abrasion of Metal

{tab=Senior Environment}

#### GOLD MEDAL WINNERS

Country  
State  
Contestant(s)  
Project Title

UNITED STATES  
Minnesota  
Xin Li

Verification and characterization of sugar-response Arabidopsis mutant gte4 for higher biofuel and soy protein production

UNITED STATES

Texas

Param Jaggi

The Algae-Mobile: Creating An Anti-Pollutant Device In The Exhaust Of A Car

UNITED STATES

Utah

Alexa Lunt

The Effects of Artemia franciscana as an Alternative Nitrogen Source When Composting Biodegradable Materials. Phase II: An Investigation of the Effects of Pesticides on the Hatch and Survival Rates of Artemia franciscana

JORDAN

-

Omar Gharaeibeh, Maher Zghondi

A system that absorbs the microwave radiation to be used in industries or equipments that releases that type of radiation.

UNITED STATES

New York

Jonathan Klus, Elan Heller

Inhibiting the growth of soybeans (Glycine max) using various application methods of a walnut-based herbicide

UNITED STATES

New York

Neil Muir

Nanoclay Composites: Synthesizing Biopolymers for Structural Viability and Flame Retardancy

VIETNAM

-

Ngoc Thao Quyen Nguyen Le, Khoa Dieu Anh Tran

Preparation for arsenic pollution treating material from red mud waste in alumina producing at chemical factory in Vietnam

UNITED STATES

New York

Jackie Bokor, Hannah Berkowitz

The impact of abscisic acid on the sequestration of metals by Euglena gracilis

GERMANY

Lisa Schowe, Anja Massolle

When leaves turn red... Chlorophyll fluorescence as a quantitative indicator of plant damage

INDONESIA

-

Dede Cintya, Evelyn Lee

Reducing acid rain, gas pollutant, and heavy metal by using charcoal's combustion waste

UNITED STATES

Maryland

A. Yashodhara Rao

Evaluation of Environmentally Benign New Chemical Rust Removing Agent

MACEDONIA

-

Arzu Feta, Despina Krstevska  
REMOVAL OF Cr+6 FROM INDUSTRIAL EFFLUENTS BY RUSTED IRON WASTE- THE MOST ECOLOGICAL,  
EFFICIENT AND ECONOMICAL DECONTAMINATION TREATMENT

#### CHINA

-

Miao-rong Zhu  
Mercuric chloride-induced ultraweak luminescence changes of Chlorella Vulgaris

#### MACEDONIA

-

Ivana Ristova, Nadica Sibinovska  
TiO<sub>2</sub>- SOLUTION FOR ENVIRONMENTAL POLLUTIONS

#### TURKEY

-

Yavuz Çetin, Onur Bakici  
THE KILLER OF CORROSION: TANNENS

#### KAZAKHSTAN

-

Akmaral Ospanova, Perizat Esenova, Ainur Makasheva  
Synthetic aluminium silicate polyphosphates sorbents for water treatment in petroleum engineering.

#### UKRAINE

-

Reyan Bari, Anton Sestritys  
INFLUENCE OF SINGLE CHAIN DNA-FRAGMENTS OF LYMANTRIA DISPAR NUCLEOPOLYHEDROVIRUS ON  
VIABILITY OF GYPSY MOTH CATERPILLARS:MODEL SYSTEM FOR CREATION OF BIONSECTICIDES AND  
MEDICINAL PREPARATIONS

#### TAJIKISTAN

-

Sorbon Rakhmatov, Mahmadraximi Muhridini  
A Novel Method for Cleaning Heavy Metal (Cu & Cr) Polluted Soil and Study of the Processed Wastes as Fertilizer

#### SILVER MEDAL WINNERS

Country  
State  
Contestant(s)  
Project Title

#### CHINA

Xiu Neng Li, Si Jia He  
The effects of two kinds of detergents and two heavy metal ions on the growth and development of Daphnia carinata

#### UNITED STATES

Indiana

John Barnes

Acid Mine Drainage Remediation: A Novel Approach

SERBIA

-

Andjela Blazic

THE EFFECT OF LIQUID SMOKE DERIVED FROM BURNT HAY ON GERMINATION AND GROWTH OF LETTUCE

SLOVENIA

-

Edo Džafic

The arbuscular mycorrhizal fungus *Glomus mosseae* alleviates maize autotoxicity in pot experiments &ndash; indications for its potential use in monoculture cropping systems

UNITED STATES

New York

Mathew Sabu, Justin Mathew

Effects of Anacardic Acid of *Pelargonium x hortorum* on *Acrythosiphon pisum*

AUSTRIA

-

Sieglinde Neudorfer, Verena Thoma

Lively Bees - Nasty Disease

CHINA

-

Yupeng Chen, Wei Qi

Solar energy ecological-restore-system on rivers

UNITED STATES

New York

Patriot Yang

Genetic Identification of Reductive Dehalogenases in *Dehalococcoides* strain BTF08

UNITED STATES

Oregon

Priyam Shah

The Positive Feedback Mechanism of Global Warming:

UNITED STATES

Texas

Li Boynton

The Use of Bioluminescent Bacteria to Detect Environmental Contaminants

KAZAKHSTAN

-

Assetbek Muratuly, Nurlubek Zhalgasbayev, Dauren Zhekenbay

Physical research of the influence of electric- magnet rays to the biological substances

UNITED KINGDOM

-

Aslihan Ogretici, Elif Tan

Sustainable soils with agriculture's black gold: humic acid

ARGENTINA

-

Augusto Germán Niez Gay  
Green, Green, How I don't Love you Green

UNITED STATES

Texas  
Varun Sambhariya  
From Blue to Green

KOSOVO

-

Haris Krasniqi, Arlind Bucinca  
Biological cleaning of river water with diatoms (algae's)

SOUTH AFRICA

-

Michael Leeuw  
TERMITE MOUND - NO GROWTH

COSTA RICA

-

Cristian Miguel Orozco Vega  
Zamioculcas zamiifolia used as a phytoinsecticide in the Raphanus sativus farming

EGYPT

-

Basma El Shenawy, Yara Elsharkawy  
Detecting landmines by using thalecress

UNITED STATES

Louisiana  
Taylor Wood  
Natural Mosquito Control, Year VII: Field Evaluation of Botanical Extract Mexican Marigold, *Tagetes minuta lucida*, as a Barrier Spray for Managing Mosquitoes

UNITED STATES

New York  
Michelle Leonetti, Mark Goodman  
Comparative nutrient analysis of *Medicago sativa* inoculated with *S. meliloti* and *R. leguminosarum*

MACEDONIA

-

Zarko Daniloski, Aleksandra Dejkoska  
PRODUCTION OF SECONDARY METABOLITES BY APPLICATION OF SALICYLIC ACID ON THE CALENDULA OFFICINALIS (MARIGOLD) IN VITRO SHOOT'S

MALAYSIA

-

Luqman Safwan Che Mohd Fauzi, Mohd Sharizam Mohd Shaari  
ALGAE-BASED BIO INCINERATOR TO COUNTER GLOBAL WARMING

TURKEY

-

Defne Angin, Nurdeniz Ozturk

## Determination of Optimum Surfactant and Floatation Conditions in Paper Recycling

UNITED STATES

New York

Ruby Monichan

Engineering biofilms for sustainable biological wastewater treatment

UNITED STATES

Oregon

Therese Chen

Infrared CO<sub>2</sub> Detection as a Measure of the Degradation of Biodegradable Plastics

UNITED STATES

New Jersey

Priya Gupta

Duckweed Control

RUSSIA

-

Artem Shalyapin

Plants as bioindicators of polluted soil in the territory of Natural park "Bitsevsky Forest";.

UNITED STATES

California

Jonathan Tinoco

CHLOROELCTRICITY - SOLARCELL FROM OLD LEAVES

UNITED STATES

Minnesota

Michael Glawe

Beyond Blue: The use of meta-material to channel renewable energy while protecting shoreline environment.

UNITED STATES

Minnesota

Emily Nimmer

Monarch Butterflies (*Danaus plexippus*) as Bioindicators of Global Climate Change

SOUTH KOREA

-

Joshua Kim

Preparation and Characterization of Biodegradable Polylactide Nano-Web Electrospun for Harmful Algae Removal Fabric

TURKEY

-

Eren Bilgili, Ahmet Soruklu, Muhammed Furkan Cetintas,

Grape Molasses

PERU

-

Callupe Correa Paul Santiago, Landeo Panduro Jairo Kevin

ICHU REVEGETATION POTENTIAL IN THE ANDES OF PERU AND THE WORLD

UNITED STATES

Utah

Kaylee Glenn

Optimum conditions for growing algae to be used as a fuel source.

UNITED STATES

Texas

Miranda Harris

Mailbox Malpractice: An Analysis of Environmental Heat in Correlation to Degradation of Pharmaceutical Mailings Year II

TURKEY

-

Abdulkadir Slocum, Elburz Kipge

Recycling Gold and Platinum From The Catalyzer On The Car Exhaustes

BRONZE MEDAL WINNERS

Country

State

Contestant(s)

Project Title

UNITED STATES

Vermont

Stephanie Chang

Reducing Phosphorus in Dairy Effluent via Constructed Wetland-Steel Slag Filter System

UNITED STATES

Connecticut

Laurence Pevsner

Fungal Remediation of Diesel-contaminated Soil with the Oyster Mushroom, *Pleurotus ostreatus*

KAZAKHSTAN

-

Nursagatova Nurgul, Narbota Zhansaya, Bayansulu Sultanova

Exploiting of vestigial watery plants in water cleaning biotechnology

UNITED STATES

Texas

Aakash Sur

Defining Impact of Environment on Prevalence of Childhood Asthma

TURKEY

-

Meltem Kaya, Ismail Güzelis

Removal of The Arsenic Accumalated in the Ground through Ferns

VIETNAM

-

Mai Khanh Dinh Tran, Huong Tram Ho Si

EXAMINE ISOFLAVONES CONTENT IN SOY YOGURT PRODUCT

UNITED STATES

Oregon

William Maurer, Jeffrey Richardson

The Irresistible Effects of Magnetism and Motion in Groundwater Remediation

UNITED STATES

Texas

Cameron Strong

Getting Carried Away III

UNITED STATES

Wisconsin

Jamie Molloy

The Effect of Nano Metal Oxides on Sentinel Organisms in the Aquatic Environment

UNITED STATES

New York

Jane Smyth, Arianne Papa

Varying light intensities on photosynthesis and bioluminescence in *Pyrocystis fusiformis*

TURKEY

-

Öykü Demirkiran, Orçun Burak Akin

DISPOSAL OF CADMIUM IONS FROM WATER BY MEANS OF CHICKEN FEATHER

BRAZIL

-

Igor Ogashawara

Constructed Wetland - System for Water Pollution Control

UNITED STATES

North Carolina

Morgan Neely

The Impact of Dilution of the Ocean on the Rate at Which Sea Ice Forms

UNITED STATES

Minnesota

Hannah Anderson

The Ecology of Terra Preta Soils

UNITED STATES

Oregon

Julia Denning

The Effects of Prescribed Burning on Environmental Mercury Release during Subsequent Forest Fires

UNITED STATES

Georgia

Nneoma Ahuruonye

Georgia Red Clay and Rhizobium Bacteria

UNITED STATES

Minnesota

Logan Pallin

The use of a rain garden to control road run-off in Scanlon Creek and an assessment of rain gardens as the best storm water management practice- Phase III

UNITED STATES

Oklahoma

Lacey Jobe

Attack of the Green Algae: The effects of fertilizer runoff on a micro aquatic environment

JORDAN

-

Yasser Abboura

Obtaining bitumen from unrecycled PVC plastic

PORTUGAL

-

Claudia Viana, Ruben Campos

Monarch butterfly in Portugal.

UNITED STATES

New York

Karrine Guerrier, Anupa Singh

Beat it! A Novel Approach to Eradicate Acyrthosiphon pisum Using Fungal Bio-Pesticides

UNITED STATES

Oklahoma

Nick Shepherd

Tar Creek - Measuring the Recovery of a Superfund Stream using Macroinvertebrates

UNITED STATES

Texas

Leon Lin

Sync!

MALAYSIA

-

Amalina Johar, Mohd Saiful Iqram Rosli

Magnificent filter from coconut shell to remove colour

BULGARIA

-

Kristian Strumeliev, Viktoria-azemina Balijagic

Bio-augmentation of anaerobic filters: an attempt to enhance biodegradation of dairy wastewaters

CHINA

Li Hongji

Intelligent indoor air purification machine

MYANMAR

-

Myat Thwin Oo, Aung Heain Soe

Solar Distiller

UNITED STATES

Indiana

Stephen Chou

Analysis of Abiotic Factors Affecting the Bioremediation Potential of *Arthrobacter* sp.

TURKEY

-

Merve Begü Gönül, Sena Nur Arslan  
Sunbathing Without Sunscreen

UNITED STATES

Michigan  
Erika Trigg  
Water Quality: An Analysis of City Water in Bay City, Michigan

UNITED STATES

Minnesota  
Karin Sather  
Fertile Waters: Recycling Over Fertilized Waters to Reduce Phosphorus Levels In Minnesota Bodies of Water

TURKMENISTAN

-

Ezizmurad Annamuradov  
Waste products of Oil refinery instead of toxic TEL as an antiknock in gasoline

UNITED STATES

Georgia  
Rachael Ceciliani  
What's Left Behind? Phase III: The Effect of Extreme Conditions on the Integrity of Wood

UNITED STATES

Wyoming  
Talya Stockert  
Variation in Containment Methodologies for the Remediation for CBM Effluents

GEORGIA

-

Mariam Kekenadze  
Sea water &ndash;excellent source of the ecologically clean fertilizer

KAZAKHSTAN

-

Gulnaz Muratkyzy, Uldana Zhangirova, Aliya Aitmagambetova  
INFLUENCE OF RADIOACTIVITY ON PLANTS MORPHOLOGY AND ANATOMY

UNITED STATES

New York  
Stephanie Alphee  
Examining the impact of global change on the ranges of New York City flora

UNITED STATES

South Carolina  
Benjamin Strauss  
The effect of elevated amounts of carbon dioxide on the growth of *Arabidopsis thaliana*

UNITED STATES

Texas

Brian Truong, Rohan Shah  
Navy Scum: A Study of the Prevention of Biofilm

UNITED STATES

Texas  
Christina Rice  
CO2 Revolution

INDIA

-

Tanvee Thakur  
Wealth from waste or Water for future

HONORABLE MENTION WINNERS

Country  
State  
Contestant(s)  
Project Title

UNITED STATES

Ohio  
John Boykin Iii  
Can recycled plastics be used to improve infra structural concrete for bridges, roads and highways as well as reduce environmental waste, pollution and cost?

UNITED STATES

Pennsylvania  
Elisabeth Bleistine  
Water Quality of the Conestoga River: A Microbial Study

UNITED STATES

South Carolina  
Emily Bakaj  
THE EFFECT OF FERROUS AMMONIUM SULFATE CONCENTRATION ON MARINE SYNECHOCOCCUS SP.'S CO2 ABSORPTION AND O2 PRODUCTION

HUNGARY

-

Csaba Leél-ossy  
Chrystal palace under the capital city of Hungary

TURKEY

-

Gökhan Yıldırım, Mehmet Akif Kurt  
USE OF WHEAT STALKS AND STUBBLES IN MANUFACTURING ADHESIVES (GLUE)

PORTUGAL

-

Stephanie Correia, Sandra Lopes  
ROTA DAS LAGOAS 27

UNITED STATES

Oregon

Andrew Stout

The Effect of pH on the Oil Production of Algae

UNITED STATES

Oklahoma

Joseph Odon

Lush Life 2: The Effects of Fertilizers and Grey Water on the Growth of Lolium Multiflorum

CHINA

-

Hao Chen

Factory discharging fume monitoring system based on digital image processing technology

UNITED STATES

Texas

Vaibhav Sharma, Rohit Vadvadgi

Weed 'Em and Reap: The Effects of Hydroponic and Aeroponic Methods on Plant Growth

TURKEY

-

Ebrar Özkalay, Efe Eris

MANUFACTURING ENVIRONMENT-FRIENDLY CONSTRUCTIONAL TOOLS BY USING THE CONSTRUCTIONAL CONTAMINANTS AND POLLUTANTS

UNITED STATES

Minnesota

Amber Erickson, Shelby Little

Susceptibility of Alfalfa to Petroleum

MEXICO

-

Nadja Carrasco, Ana Patricia Moreno

The Solar Stove

UNITED STATES

Colorado

Johanna Phillips

Infested Forests and Evapotranspiration

UNITED STATES

Florida

William Li

Variations on Dissolved Oxygen in Lentic and Lotic Ecosystems

UNITED STATES

Minnesota

Lucas Kleinschrodt, Trae Swehla

Biodegradable Plastic

UNITED STATES

New York

Jennifer Loo, Iris Kao

Determining the Validity of the "Microwave-Safe" Claim of Plastics Using Infrared Spectroscopy

UNITED STATES

Oregon

Rahul Gates, Emily Axelrod

Drought Resistance in the F2 Generation of Brassica rapa

TUNISIA

-

Ghazi Sfaxi, Hela Oueslati

Monitoring soil degradation and environmental assessment

UNITED STATES

Oklahoma

Rachel Rickards

Phytoremediation of Hydrocarbon Contaminated Onshore Regions

UNITED STATES

Texas

Emily Wagoner

The Effects of Carbon Dioxide on Cambaridae camburus

UNITED STATES

Georgia

Ashley Jackson, Bijal Patel

The Effects of Silver Nano-Particles on Aquatic Biomes

UNITED STATES

Louisiana

Anita Saraf

Effect of Corticosterone on the Expression of Insulin Receptor mRNA in Xenopus Laevis (African Clawed Frog)

KOSOVO

-

Jeton Dukakjini, Mithat Ibollari

UTILIZING USED TEA WASTE IN ABSORBING PHENOL FROM SYNTHETIC AND INDUSTRIAL WASTE WATER

PORTUGAL

-

Vanessa Viegas, Susana Caetano

Salvinia molesta: a global threat.

UNITED STATES

Alaska

Whitney Walker

A Survey of Microbial Diversity in a Muskeg of Southeast Alaska using Denaturing Gradient Gel Electrophoresis

HONG KONG

-

Hoi Ming Chu

Inedible cellulosic ethanol

PHILIPPINES

-  
Carissa May Enriquez, Kevin Bryan Jose  
DEVELOPMENT OF AN ORGANIC BATTERY USING P-TOLUENE POLYPYRROL AS A POTENTIAL ELECTRODE  
VOLTAGE SOURCE AND COCONUT (Cocos nucifera) VINEGAR AS ELECTROLYTE

UNITED STATES  
New York  
Tahirah Cook  
Phytoremediation: The Application of Hyperaccumulators and Phytoextraction to Remove Heavy Metal Contaminants  
from Soil

UNITED STATES  
Texas  
Medine Tosun  
The Alternative protection for power poles before hurricanes

UNITED STATES  
Indiana  
Gretchen Catron  
Food Additives and Medicine in Runoff: A Growing Environmental Problem

NIGER  
-  
Mariam Mouddour  
WATER PURIFICATION

UNITED STATES  
Oregon  
Caitlyn Au  
The Effect of Substrate Material on Nitrate and Phosphate Levels in a Constructed Wetland

RUSSIA  
-  
Yulia Khvostova  
Trees testify.Ecological-dendrochronology study in the landscape "Teply stan"

{tab=Junior Environment}

#### GOLD MEDAL WINNERS

State  
Contestant(s)  
Project Title

Oregon  
Naomi Shah  
Sustainable Indoor Air Quality: The Impact of Airborne Particulate Matter, Carbon Monoxide, Carbon Dioxide, and  
Volatile Organic Compound levels on the Peak Expiratory Flow of Asthmatic Subjects

Texas  
Austin Joe Greenfield  
The Potential Use of Magnetite and Magnetite + Humic Acid to Filter Heavy Metals from Water

Arkansas  
Sarthak Garg  
The effect of pesticides on the protein levels of brine shrimp

#### SILVER MEDAL WINNERS

State  
Contestant(s)  
Project Title

Maryland  
Soo Yeon Kim  
Best Green Roof Plant that Keeps the Right House Temperature

Texas  
Kevin Lee  
The Effect of Motor Oil and Potassium Chromate on the Growth of Halobacteria NRC-1

Texas  
Derek Lam  
Investigation of Rain-X® and Sunscreen Coating to Block UVA Exposure (Year 2)

Utah  
Andrew Tate  
The Effect of Common OTC Drugs on Daphnia survival

Louisiana  
Brayden Wood  
Are Termites Picky Eaters? Wood Preferences of Reticulitermes Flavips

Texas  
Autumn Rose Greenfield  
Comparing Organic and Non-Organic Antibacterial Potency of Trigonella foenum-graecum and Allium sativum Against Escherichia coli

Ohio  
Kelly Haller  
Is Vermicomposting a Viable Alternative to Commercial Fertilizer?

#### BRONZE MEDAL WINNERS

State  
Contestant(s)  
Project Title

Utah  
Calee Gardner  
Which Type of Sediment is Most Toxic to Daphnia

Maryland  
Gregory Bekher  
Organic Fertilizers Significantly Improve Photosynthesis Capability Of Plants

Minnesota  
Michelle Erdahl  
Seed Germination: The Effect of Road Salt on Various Types of Plants

Texas  
Emran Shafaq  
Antifreeze out of Frost Hardy Plants

Texas  
Alexander Sherwood  
The Effect of Aeration on Micro-organisms in Stagnant Ponds Polluted with Invasive Water Weeds

Texas  
Siddharth Reddy  
Soap Nuts: An Alternative to Synthetic Detergents

Texas  
Venkatasai Katta  
Pure It: Safe Drinking Water

Texas  
Zahra Qureshi  
To Determine Optimum Conditions Decreasing Hand Transfer of Bacteria And Its Environmental Impact

Nebraska  
Matthew Gerdes  
How Much Nitrogen Does Glycine max Add To The Soil ?

Colorado  
Cellene Feathers  
Recharge and Save

## HONORABLE MENTION WINNERS

State  
Contestant(s)  
Project Title

Florida

Chelsea Milstid  
Which Plant Will Draw Out The Most Pollutants From Water?

Texas  
Dee Anthony  
Racing Colors

Texas  
Alexandra Friar  
Water Toxicity

Utah  
Duke Dunham  
The Tipping Point

Texas  
Ivan Mota  
Filtering Water and Green

Minnesota  
Elijah Welu  
Manure - The Natural Alternative

Illinois  
Brian Cruz  
salty roads and environment

Texas  
Chelsea Truong  
Nanocrystal to the rescue!

Louisiana  
Jesus Chavez  
Are you Safe in New Orleans

Texas  
Sabrina Van Ravenstein  
Can greywater be recycled and used on plants?

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var tbl = document.getElementsByTagName('table');  
for(var i = 0 ;i
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