

PRIZE-WINNERS

22nd European Union Contest for Young Scientists

FIRST PRIZES (€ 7.000 per Project)

Country	Czech Republic
Contestants	Miroslav Rapcak (19) David Pegrimек (19)
Scientific Field	Physics
Project Title	Complete Phase Diagram Of CO2 Nanoclusters
Short Summary	Complete Phase Diagram of CO2 Nanoclusters Miroslav Rapcak, David Pegrimек Nanoclusters (clusters) are aggregates of a few particles. For the past decades it has been accepted that clusters constitute a new and exciting form of matter with exotic properties used in nanotechnology. Nowadays, temperature dependences of properties are being studied. In the future applications of clusters, they will be surrounded by other particles that impact them by pressure. There exist no complex study of cluster properties dependence on the pressure. We have studied carbon dioxide clusters. Knowledge of CO2 clusters properties is much behind the knowledge of properties of other clusters. CO2 clusters become important for the surface erosion methods that provide an arbitrary surface structure or high friction surfaces. Studying of CO2 clusters at high pressures can provide a way to store CO2 into the ocean to avoid greenhouse ect.
Country	Poland
Contestants	Lukasz Sokolowski (20)
Scientific Field	Biology
Project Title	Foraging Strategy Of The Ant Formica Cinerea
Short Summary	The goal of the research was to discover how the ants Formica cinerea search for food. Another aim was to check if F. cinerea are able to share information about the quality of food. Observation of wild F. cinerea colonies showed, that they use a strategy called "mass recruitment". Ants using this strategy create a column leading from the nest to food. They use pheromones to mark the way. Observation of ant colonies kept in a special terrarium (formicarium) showed that the ants can share information about the quality of food. They can also switch from food of lower quality to the better one, but they do it slowly. The strategy used by F. cinera is not the most effective, but thanks to using it, F. cinerea avoids fights with T. caespitum, another ant living in the same environment. T. caespitum uses a more flexible foraging strategy called "group-mass recruitment". That's why ants of these two species do not compete for the same sources of food and do not fight with each other.
Country	Hungary
Contestants	Dávid Horváth (20) Márton Balassi (20)
Scientific Field	Social Sciences
Project Title	Nature On Your Screen - Computer Based Modeling And Local Area Network In The Education Of Ecology

**Short
Summary**

The crisis in science education gets much public attention these days as natural sciences are amongst the least popular subjects. Our starting point was to examine which programs we and our peers like using the most and which of these are the ones that can be implemented in classroom, so we decided to write a computer model to support ecology education. In our model by choosing external parameters to affect the ecosystem, it is also possible to model natural or anthropogenic effects such as migration, supporting certain trophic levels or spreading pesticides or pollutants. Using the program individually or in network provides an interactive tool for showing the main characteristics of ecosystems while developing mathematical competence, environmental consciousness, problem-based approach and creativity. We have also compiled a teaching aid including some stable configurations, lesson plans and ideas to assist further classroom implementation.

SECOND PRIZES (€ 5.000 per project)

Country	Contestants	Age	Scientific Field	Project Title
Poland	Justyna Slowiak	19	Biology	Biodiversity, Palaeoecology And Taxonomical Position Of Vertebrates In The Middle Triassic Sea Ecosystem In Silesia (sw Poland)
Germany	Simon Schuldt	19	Engineering	Aircraft Of The Future - A Practise-based School Project
Germany	Luca Banszerus Michael Schmitz	18 19	Physics	Production And Charaterization Of Graphene Devices

THIRD PRIZES (€ 3.500 per Project)

Country	Contestants	Age	Scientific Field	Project Title
Latvia	Aleksejs Sazonovs	18	Computing	Applying Image Recognition Methods For Classification Of Astronomical Images
Italy	Davide Giacinto Lucarelli Niccolò Pozzi Stefano Sanfilippo	19 19 19	Mathematics	An Analysis of the Network of Chemists within the City of Monza
Portugal	Inês Alexandra Costa Kristoffer de Sá Høg	18 19	Environment	Rocks Of The Southwest - The Mysteries Written On The Stone

INTERNATIONAL COOPERATION PRIZE (€ 5.000 per project)

Country	Contestants	Age	Scientific Field	Project Title
Brazil	William Lopes	20	Biology	Utilization Of The Fungus Aspergillus Niger On Wastewater Treatment Ii

HONORARY AWARDS

Stockholm International Youth Science 2010

Country	Contestants	Age	Scientific Field	Project Title
Czech Republic	Miroslav Rapcak	19	Physics	Complete Phase Diagram of CO2 Nanoclusters
	David Pegrimmek			
Poland	Lukasz Sokolowski	20	Biology	Foraging Strategy Of The Ant Formica Cinerea

London International Youth Science Forum 2011

Country	Contestants	Age	Scientific Field	Project Title
Hungary	Dávid Horváth	20	Social Sciences	Nature On Your Screen - Computer Based Modeling And Local Area Network In The Education Of Ecology
	Márton Balassi	20		

SPECIAL DONATED PRIZES

There are 25 special donated prizes: a five-day visit of a technical and cultural nature to the

European Patent Office in Munich and a one-week stay at each of the seven members of

EIROforum[1]:

- CERN: The European Laboratory for Particle Physics
- EFDA: The European Fusion Development Agreement
- EMBL: The European Molecular Biology Laboratory
- ESA: The European Space Agency
- ESO: The European Southern Observatory
- ESRF: The European Synchrotron Radiation Facility
- ILL: The Institut Laue-Langevin

The European Patent Office, Munich, Germany

Country	Contestants	Age	Scientific Field	Project Title
Switzerland	Andrea Agazzi	19	Chemistry	Nanotechnology From Natural Tissues. Realization Of Catalytic Systems With High Active Surface From Spongy Bone.
	Mauro Salazar	20		
Switzerland	Christian Meier	20	Engineering	Mts – Magnetic Transport System
	Thomas Vögeli	20		
Germany	Simon Schuldt	19	Engineering	Aircraft Of The Future - A Practise-based School Project

EIROForum Prizes

CERN: The European Laboratory for Particle Physics

Country	Contestants	Age	Scientific Field	Project Title
Belarus	Volha Shumskaya	17	Mathematics	Extremal Properties Of L.c.m. And G.c.d. For Sequences

EFDA-JET

Country	Contestants	Age	Scientific Field	Project Title
Latvia	Janis Smits	18	Physics	Optimization Of Synthesis Conditions Of Lithium Iron Phosphate And Development Of A Thin Layer Battery

ESA

Country	Contestants	Age	Scientific Field	Project Title
United Kingdom	Raghd Rostom	19	Biology	Embryonic Chick Bones As A Model For Osteogenic And Chondrogenic Differentiation In Stem Cells

ESO

Country	Contestants	Age	Scientific Field	Project Title
Israel	Pavel Fadeev	19	Physics	An Exploration Of Hii Star-forming Regions

ILL

Country	Contestants	Age	Scientific Field	Project Title
Bulgaria	Radko Kotev	18	Mathematics	A New Solution Of The Apollonius Problem

ESRF

Country	Contestants	Age	Scientific Field	Project Title
Italy	Sebastian Cincelli	19	Engineering	Eu.r.ex.- Eusocial Rovers For Exploration

Host Organization Special Donated Prizes**The ADENE – Agency for Energy Special Prize**

Country	Contestants	Age	Scientific Field	Project Title
Ireland	Richard O'Shea	19	Engineering	A Biomass Fired Cooking Stove For Developing Countries
France	Rémi Ounadjela	17	Physics	The Musical Plasma
	Kaiqiang ZHANG	18		
	Victor Mizrahi	17		

Health Special Prize

Country	Contestants	Age	Scientific Field	Project Title
Israel	Nitay Aspis	18	Biology	The Influence Of Galectin-8 On The Skeletal System
Slovak Republic	Ferenc Jaroslav	17	Biology	The Examination Of Circadian Regulation Of Response On A Herbicide Glyphosate In Common Chickweed (stellaria Media)

Vision-Box Special Prize

Country	Contestants	Age	Scientific Field	Project Title
Germany	Andreas Lang	20	Computing	Face Detection Using Swarm Intelligence