Network of Youth Excellence

Information Brochure

an informal network of 29 countries
to promote the participation of
students below 21 in research

"A Network, where you find yourself at home."

www.nyex.info

The idea

Research practice for students below 21

One of the most important fields for the recruitment of new generations to science is the secondary school. Between 14 and 21 years is the age of self-discovery, when adolescents explore their capabilities and limits, and seek a place in society. Puberty is a challenging time for many parents and teachers. Their children and students question their ”wisdom”, and set out to find answers to problems that they think adults cannot properly address. Science and research offer a unique opportunity for adolescents to quench their thirst for answers and explore their intellectual strengths and capabilities. Research in a laboratory and interaction with other scientists provide a new social environment for these students, where they can earn recognition of their capabilities and find role models that they might not encounter at school, at home or with their childhood friends. Moreover many students who carry out research in a laboratory often form their first real friendships of consequence based on shared intellectual pursuits in this new environment.

Attracting young students to scientific research is a topic of growing importance from science’s point of view because the numbers of students who choose a career in the natural sciences is decreasing. Many senior scientists, economists and politicians in the USA and Western Europe are concerned about a potential decline in the number of scientists and engineers, which could hamper the growth of high-tech industries, particularly biotechnology and information technology. These of giving young people a basic knowledge of science and technology and awakening their interest in a research career are clearly recognized and have become a subject of many conferences.

All around the world an increasing number of initiatives ensure research possibilities for motivated secondary school students. These initiatives, however, work in isolation and in many places they work almost completely out of public knowledge. This is why UNESCO and other sponsors deemed it important to ensure a possibility for the exchange of experiences among the best initiatives worldwide within the framework of the Network of Youth Excellence. The Network is completely independent, politically neutral, and has no intention whatsoever to be involved in any political affairs locally or internationally. More than 25 organizations all over the world have already joined this network as Full Members or Partners.

Major aims and objectives of the Network

Full Members of the Network agree on a Memorandum of Understanding that describes the composition and operation of the Network of Youth Excellence and sets out its main objectives. Members pledge to:

- Promoting cooperation between existing scientific research training projects for students until the age 21 and their teachers in a wide array of scientific areas
- Promoting research collaborations between students and teachers of different programs and countries
- Facilitating the collaboration with international organizations of young scientists such as the World Academy of Young Scientists (WAYS)
- Bettering the existing projects by exchanging their experiences and outlining successful organizational and fundraising tactics
- Helping the initiation of scientific research training projects in countries where they currently do not exist
- Initiating international joint scientific student/teacher projects
- Promoting the participation of students in the organization of research training programs
- Encouraging an inter- and multidisciplinary dialog on the ethical and responsible conduct of research and use of scientific knowledge as well as on social aspects of scientific research
- Drawing the attention of policy makers and the media to the importance to start the recruitment to scientific research at a very early age.

Diversity: our strength

The Network treasures the diversity of the approaches for science education and research training in:

- Target groups (talented, underprivileged, motivated students; science teachers; society around the students and teachers, etc.)
- Content (subject- or scientific discipline-based projects; participation in top science; broad, interdisciplinary projects; fun-type projects, etc.)
- Methods (courses, summer schools, weekend seminars, continuous projects, lab-type projects, school-type projects, cyber-courses, distance-learning, etc.)
- Aims (information transfer, ability development, raising self-confidence, raising long-lasting interest and commitment to science, help in science communication, help in applied research, promotion of public understanding, etc.)

Membership

Full Members

The Network has only organizations as its full members. All regional, national and international organizations are eligible, which have at least two years experience in extracurricular education of young students (ages below 21) in science and technology. Full membership can be initiated by a written notice expressing the agreement of the organization with the Memorandum of Understanding and can be cancelled any time by a written notice. New full members of the Network are accepted by the Executive Board.

Partners

The Network regularly informs all interested schools, and other legal entities working in the field of extracurricular education of young students (ages below 21) in science and technology about its activities. The Network particularly promotes the activity of those organizations and individuals, who want to establish an organization eligible for full membership in the Network. Those, organizations and individuals who do not meet the requirements for Full Membership, or organizations that meet the requirements for full membership but prefer a more limited role, may become Partners of the Network. Partnership can be initiated by a written notice at the Secretariat addressed to the Board of the Network.

Contacts

The Network works closely with the UNESCO World Academy of Young Scientists to establish contacts with other young scientists working as pre-college researchers, university undergraduates, Ph.D. students or postdoctoral fellows world-wide. The Network keeps regular contacts with interested governmental or non-governmental committees, bodies and individuals via various means, including the website (www.nyex.info) and the official email-list (nyex@nyex.info).

Sponsors

Sponsors of the Network may not work in the field of extracurricular education of young students (ages below 21) in science and technology but help the activity of the Network either financially or by other means. From the very beginning the Network has benefited by the support of diverse Sponsors from international organizations through governmental and non-governmental organizations, to firms and corporations.

Full Members

American Junior Academy of Science	www.amjas.org	USA
Arachne Association	www.natur.cuni.cz/~arachne	Czech Rep.
Bildung und Begabung	www.bildung-und-begabung.de	Germany
Department of Gifted Children	shlomitra@education.gov.il	Israel
Euroscience Greek Regional Section	www.euroscience.org	Greece
Hungarian Research Student Association	www.kutdiak.hu	Hungary
Illinois Mathematics and Science Academy	www.imsa.edu	USA
Kim Institute	www.thinkid.com	South Korea
Montgomery County Public Schools	www.mcps.k12.md.us	USA
National Institute for Laser and Plasma	sporea@ifin.nipne.ro	Romania
Petnica Science Center	www.psc.ac.yu/eng	Serbia
Technion Center	www.technion.ac.il/~scitech	Israel
Universidade do Minho	www.hsci.info	Portugal
Visnjan School of Astronomy	www.astro.hr	Croatia

Partners

Barcelona Science Park	www.pcb.ub.es	Spain
Comenius University	www.fns.uniba.sk/~kbi/kovlab	Slovakia
Educational Center for Talented Youth	daivgrak@lc.ff.vu.lt	Lithuania
Estonian Academy of Young Scientists	teperik@ut.ee	Estonia
Hands-on Science Network	www.hsci.info	Network
Irish Centre for Talented Youth	www.dcu.ie/ctyi	Ireland
World Academy of Young Scientists	www.waysnet.org	Network

Executive Board

The Executive Board is comprised of the Chairperson and two Vice-Chairpersons from the Full Membership of the Network, as well as the representative of the Secretariat. The current Chairperson and Vice-Chairpersons were elected in 2005, and hold their office until the next meeting of the Board in 2006. The Executive Board is responsible for implementing causes, making everyday decisions, initiating and coordinating common network activities, and facilitating communication among members.

Peggy Connolly, Chairperson

connolly@imsa.edu

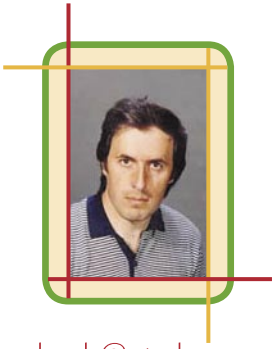
Peggy Connolly, Doctor of Education, has been the Mentorship Coordinator at the Illinois Mathematics & Science Academy since 1991. She has worked with talented and gifted students for more than 15 years, has mentored students, and has given numerous presentations and workshops on student research, research ethics, and biomedical ethics. At the Illinois Mathematics & Science Academy® (IMSA), which is an internationally-recognized pioneering educational institution created by the State of Illinois to develop talent and leadership in mathematics, science and technology, she supervises a wide range of student research activities. IMSA's advanced residential college preparatory program enrolls 650 academically talented Illinois students in grades 10-12. Nearly 18,000 teachers and 34,000 students in Illinois and beyond have benefited from The Center@IMSA program of professional development and student enrichment. Located in Aurora in the high-tech corridor west of Chicago, IMSA serves the people of Illinois through innovative instructional programs, public and private partnerships, policy counsel, action research, and the leadership and achievements of its graduates. IMSA's Student Inquiry and Research Programs involves about 225 students each year in mentored research (Mentorship), self-directed inquiry (Student Inquiry), and engineering entrepreneurship (Talent). Mentors and advisors volunteer over 20,000 hours a year, and are supported by approximately 150 institutions: corporations, museums, science laboratories, universities, government agencies, and other research organizations. Students become active participants in research, increasing in depth and scope their research abilities and experiences, as they become contributing members of the scientific and scholarly community.

mhkim@thinkid.com

Myoung Hwan Kim, Vice-Chairperson

Kim, Myoung Hwan established the Institute for the Korean Gifted (KIKG) in 1988 to develop and educate the gifted/talented children by Dr. Kim and his comrades. Dr. Kim and his comrades began to study in the field of gifted education, especially science gifted education, and develop the programs for the gifted and the science gifted for twenty years from 1983. KIKG developed the programs for the gifted to stimulate their creativities, logical thinking skills, problem solving abilities and science inquiry abilities. KIKG have educated over 1,000 children since 1988 and is doing the follow-up study about them. Dr. Kim, as a director of KIKG, contributed to establish the law of promotion for the gifted in Korea, the science gifted centers in universities and Busan Science Academy as a science gifted high school in Korea. Dr. Kim carried out the projects, the Promotion of Gifted Science Education in Science High Schools supported by the Ministry of Science (MOST) and Technology and Korean Science and Engineering Foundation (KOSEF) in 2003 and 2004. In the projects he directed the mentorship programs in the field of science and technology, in the name of Research and Education (R&E), for the Science High School students.

Korado Korlevic, Vice-Chairperson



korado@astro.hr

Born in the city of Porec 1958, he spent the college years in the city of Pula where he became an active member of the local amateur astronomical society. That was followed by years of observing, making telescopes and teaching. As student started he to teach gifted pupils the introduction to science through astronomical courses at the Amateur Astronomical Society of Visnjan. In the year 1981 got a B.Sc. from the pedagogical faculty of Rijeka. From that period, the problem of the motivation of gifted children become a "file rogue" of the following years of work as teacher of polytechnics and computer science. At the end of the '80 with a group of "same thinkers" he started the "Yugoslav School of Astronomy", which after the war became known as "The Visnjan School of Astronomy". The work on meteors culminated with the participation in the "1st International Tunguska Expedition", with two main projects. The main challenge is still the search of better, more effective way to motivate the gifted pupils, and for that purpose few very different educational activities are organized at the Visnjan observatory. In the last years, the Visnjan School of Astronomy and the Visnjan Observatory became part of the "Visnjan Education and Science Center" hosting "VIP Eureka", the first multidisciplinary science/technology fair in Croatia.

Secretariat

The Secretariat is provided by a full member organization and is elected by the Board for four years. In 2005 the Hungarian Research Student Association was entrusted to perform the role of the Secretariat until 2009. The Secretariat handles all the administrative work, supports the work of the Executive Board, helps the Board and the Executive Board organizing network activities, and maintains the website.

Hungarian Research Student Association

sulyokkata@kutdiak.hu
Katalin Sulyok
President

In 1995 an unprecedented program was established in Hungary by Prof. Peter Csermely to help talented high school students (between the age of 14 and 21) to find mentors who introduce them to scientific research in Hungarian universities and research institutes. In 1996 the Hungarian Research Student Association was officially established, which gained an overwhelmingly positive response from the Hungarian scientific community. We have nearly seven hundred mentors in 37 Hungarian towns who bring talented and motivated students into their research projects. Among our mentors one can find 118 members of the Hungarian Academy of Sciences, the Nobel Laureate George Olah and numerous respected professors of their research field.

The cooperation between talented students and the professors is helped by a book containing a list of the mentors. The students need to register themselves on our website (http://www.kutdiak.hu) by answering two questions: "Why do you want to pursue research?" and "Why do you feel that you are better than other students?" Thus the selection of the students is based on exclusively on motivation. Then the talented students receive via e-mail the mentors list that contains the addresses and research fields of the scientists, and a wide range of keywords (approximately 3000, from abortion to x-ray micro-analysis) to help the students decide what their field of interest really is. Maturity is a basic factor: the Association does not help the student establish connection with the mentor, everyone builds their own relationships independently. The researchers treat all students as equal partners which offers the students a unique experience at this young age. Every Hungarian high school headmaster gets the mentor list at the beginning of the school year; thus the Movement tries to be available for every high school students. Moreover more than 1000 talented students get this book personally. We also established a network of 700 high school teachers to recruit research students to the initiative and/or establish science clubs in their own school.

Since 1996 the number of the involved students has been growing steadily thanks to the media support and the nationwide and international reputation. As an acknowledgement of our initiative the movement received the Descartes Award from the European Union in 2004. During the last ten years more than 5000 students pursue research with a mentor and currently more than 2000 talented students work in laboratories and institutes. Almost 50% of the students registered are and always have been girls, which shows an equal and increasing interest for scientific research in both genders. The majority of these students live in small villages (23%) and small towns (31%), thus the Mentorship Program helps the mobility of the underprivileged. More than half (59%) of recruited students work in life science laboratories, while 27% and 16% pursue their research in other natural sciences and social sciences. These ratios, which have been fairly stable over the last four years, show the popularity of the life sciences among the young generation, especially in the fields of environmental and medical research. "Old students" who pass the age of 20 and out of the HRSA Mentorship Program generally join research teams at their university. Some already have finished their PhD studies and became mentors of the Mentorship Program.

Once a scientific project is carried out, a student has the opportunity every year to present the results at six regional conferences held in Hungary, Romania and Serbia. The best third of the student lecturers get a chance to present their results at the National Conference, where the most prominent persons of Hungarian science comprise the jury that evaluates the presentations and performances in different sessions in both human and natural sciences. The most outstanding students may participate in foreign science camps, or present their results in media in various ways. The best students of the National Conference –approximately 80 each year– are entitled to participate in a one-week summer camp in July where the best Hungarian scientists are invited to talk about their approach and devotion to science. Respected writers, clerics and successful business professionals or statesmen also participate, engaging participants in open discussion. Young psychologists are also invited to discuss the possible dangers of being outstanding in a field and show young researchers how to solve the conflicts that might arise from this situation.

The Association is a self-organizing system. A three-member student presidency, elected every year by the annual assembly during the summer science camp, makes the financial and operative decisions. In 1998 the non-profit Research Student Foundation was established to manage finances, such as the annual budget of the Hungarian Research Student Association. Thanks to the help of the Ministry of Education, the association opened an office in 2002. Two full-time coordinators keep contact with members, raise funds and deals with the administrative workload. The Hungarian Research Student Association programs are always free of charge for the students.

Network activities

1st NATO-UNESCO Advanced Research Workshop

The idea of the workshop was raised as a follow-up meeting of the World Conference of Science and served as a related event to the UNESCO Forum of Young Scientists. The chief organizers of the workshop, Prof. Leon Lederman, Nobel Laureate (USA) and Prof. Peter Csermely (Hungary) were section heads of the World Conference of Science and its satellite meeting, respectively. The workshop was a small meeting with 50 participants to disseminate the experiences of highly successful scientific research training projects to Central-Eastern Europe.

2nd NATO-UNESCO Advanced Research Workshop

The Workshop continued the successful start of the 1st NATO-UNESCO Advanced Research Workshop in 2002 to establish research training programs world-wide. The Workshop spurred a great interest in the 18 participating NATO and partner countries and gave a comprehensive survey of existing, highly successful examples of scientific research training in Europe, in the USA, Middle East and in Asia. The concentrated introduction of the best practices provided a unique opportunity to learn successful elements from other initiatives as well as to implement these techniques in other Central-Eastern European (mostly NATO Partner) countries. The workshop demonstrated that talent-support/science recruitment practices have a great diversity. After two years of successful common activities and exchange programs, the participants of the 2nd NATO ARW officially established the Network of Youth Excellence to facilitate further cooperation.

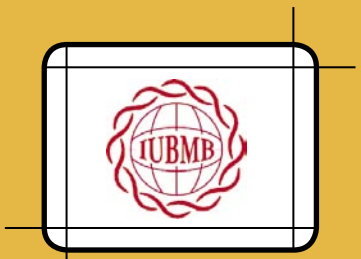
Budapest Roundtable

On 31 May 2005 an international Roundtable was organized by the European Academy of Sciences and Arts, the UNESCO, and the Network of Youth Excellence to facilitate a discussion between older and younger generations of science on several important issues, such as giftedness and social responsibility, the role of young scientists in the scientific society, and the future and role of science in the 21st century. The participants – members of the European Academy of Sciences and Arts and young scientists between the age of 18 and 21 – agreed on a Memorandum, which was later handed over to Ján Fige EU Commissioner for Education, Training, Culture and Multilingualism.

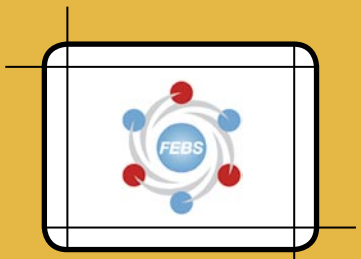
30th FEBS Congress – 9th IUBMB Conference

A successful cooperation between FEBS and the Network of Youth Excellence took place in July 2005, when the Network recruited more than 160 high school research students - known as "Yellow Angels" - from 4 Central European countries to help to organize the 30th FEBS Congress in Budapest. Most of the on-site helpers pursued research in the field of bio-sciences; thus the FEBS Congress was not only a memorable experience, but also stimulated their further research. These students helped the participants navigate the Congress but also stopped them and asked them about their research. As special events, pub tours were organized during the Conference where the twenty best speakers had an informal meeting and discussion with the high school students.

Sponsors

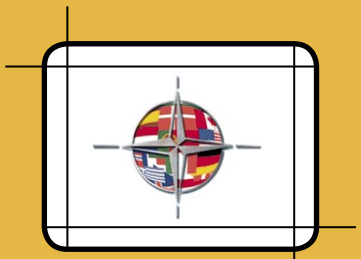


IUBMB

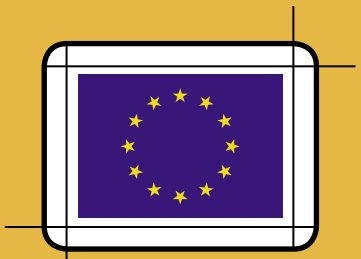


FEBS

UNESCO



NATO



EU

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