Programme and Information

Szeged Winter School 2015:
Non-Standard Forms of Teaching Mathematics and Physics:
Experimental and Modeling Approach

and

Szeged Winter Training 2015:
Mobile Tools and Dynamic Modeling in Learning Mathematics

Szeged, January 30 – February 1, 2015

A projekt az Európai Unió társfinanszírozásával valósul meg.
Projekat sufinansira Evropska Unija
The project is co-financed by the European Union

Useful pieces of information

Venue:

Bolyai Institute, H-6720 Szeged, Aradi vértanúk tere 1
Department of Medical Physics and Informatics: 6720 Szeged, Korányi fasor 9.

Information, WWW:

Szeged: www.model.u-szeged.hu
Novi Sad: www.dmi.uns.ac.rs/ipa

Local contact:

János Karsai PhD, *karsai.janos@math.u-szeged.hu*
Zsolt Vizi, *zsvizi@math.u-szeged.hu*

Organizing committee

University of Szeged

János Karsai PhD, associate professor
Zsolt Vizi, junior research associate
Róbert Vajda PhD, assistant professor

University of Novi Sad

Arpad Takači PhD, professor
Đurđica Takači PhD, professor
Mirjana Mikalacki PhD, assistant professor

Map:

Bolyai Institute
(Aradi vértanúk tere 1.)

Department of Medical Physics and Informatics
(Korányi fasor 9.)

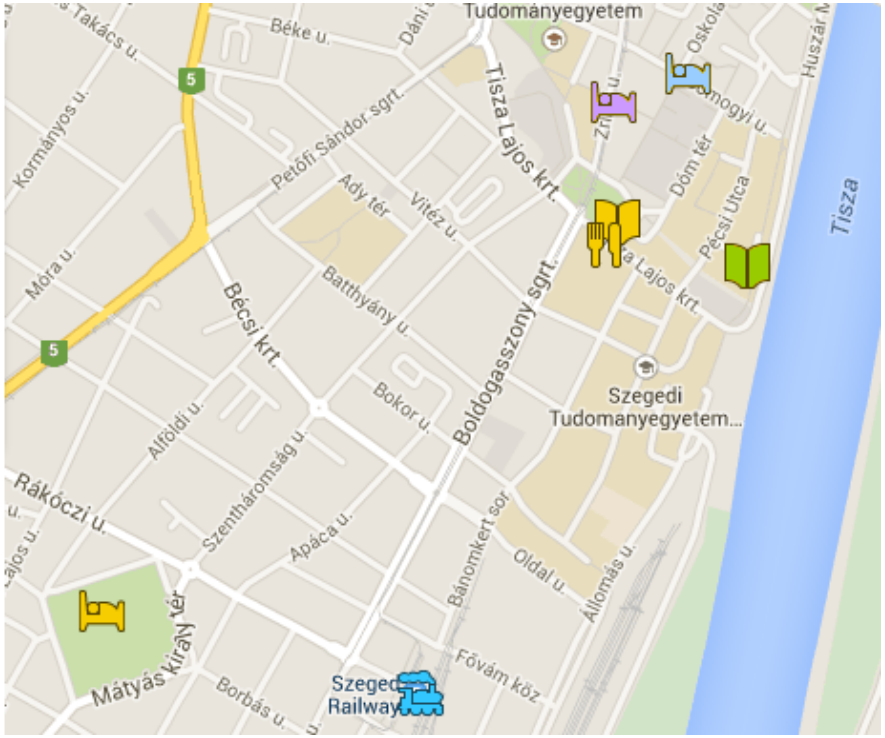
Restaurant Gödör
(Tisza Lajos körút 103.)

Apáthy István Dormitory
(Apáthy utca 4.)

Guesthouse of the Hungarian Academy of Sciences
(Somogyi utca 7.)

Franciscan Monastery
(Mátyás tér 26.)

Railway Station
(Indóház tér 2.)



January 30

09.00 - 14.30	**Plenary session, Bolyai Hall, Bolyai Institute**
09.00 - 10.30	Registration
10.30 - 11.00	Opening addresses MathPhys-Bridge: project overview by *János Karsai*
11.00 - 11.40	*Katalin Varjú*: The ELI research infrastructure introduced via classical physics problems (Az ELI kutatóintézet bemutatása klasszikus fizika példákon keresztül)
11.40 - 11.50	*Ákos Balázs, Valéria Kelemen*: A Motiváció Műhely bemutatása (The activities of "Motiváció Műhely")
11.50 - 12.00	Break
12.00 - 12.40	*Gergely Röst*: Ebola - what does the math say? (Ebola – mit mondhat a matematika?)
12.40 - 13.30	Talks of some prize-winners on the high school competition (2014): *Dániel Virágh*: A logaritmus alkalmazásairól (Some applications of the logarithm) *Csilla Németh, Dániel Papvári*: A Fibonacci sorozat (The Fibonacci sequence) *Ferenc Hundzsa, István Jenei és Sándor Szombati*: Számjegyek összegzésével kapcsolatos feladatok (Problems related to summing the digits of numbers)
13.30 - 15.00	Welcome reception

15.00 - 18.00	**Parallel sessions**		
	Researchers and PhD students (English) **Szőkefalvi Hall, Bolyai Institute**	***Teachers, high school students (Hungarian)*** **Bolyai Hall, Bolyai Institute**	***Winter Training group (Hungarian)*** **Haar Hall, Bolyai Institute**
15.00 - 16.30	***PhD student presentations, Part I*** *Tamás Zarnócz*: Introduction to neighbourly polytopes and construction methods *Tamás Dékány*: The number of slim rectangular lattices *Éva Jungábel (University of Novi Sad)*: On homomorphism-homogeneous point-line geometries	*Péter Makra*: Fizikai kísérletezés az Edaq530 segítségével (Introduction to physics experiments with Edaq530)	*Attila Máder*: Mobil eszközök a matematika tanulásában, 1. rész (Mobile tools in learning mathematics, Part I)
16.30- 16.45	Break		
16.45 - 18.15	***PhD student presentations, Part II*** *Kristóf Körmendi*: The extinction theorem for Galton-Watson processes *Gábor Borbola*: Szemléletes bizonyítások háromszög-számokról (Graphical proof about triangular numbers) *Péter Boldog*: Herd immunity caused by a toxoid vaccine	*Katalin Kopasz*: A fizika kísérletektől a matematikai elemzésig: Az Edaq530 és a GeoGebra integrációja (From physics experiments to mathematical evaluations: Integration of Edaq530 and GeoGebra)	*Attila Máder*: Mobil eszközök a matematika tanulásában, 2. rész (Mobile tools in learning mathematics, Part II)

January 31

09.00 – 12.45	**Parallel sessions**		
	Researchers and PhD students (English) ***Kalmár Hall, Bolyai Institute***	***Teachers, high school students (Hungarian)*** ***Bolyai Hall, Bolyai Institute***	***Winter Training group (Hungarian)*** ***Haar Hall, Bolyai Institute***
9.00 – 10.45	*Attila Dénes*: Models in population dynamics	*Attila Máder*: Mobil eszközök a matematika oktatásában, I. rész (Mobile tools in math education, Part I)	*József Kosztolányi*: Bevezetés a GeoGebra szoftver használatába (Introduction to GeoGebra)
10.45 – 11.00	Coffee break		
11.00 – 12.45	*Zsolt Vizi*: Introduction to bifurcations	*Attila Máder*: Mobil eszközök a matematika oktatásában, II. rész (Mobile tools in math education, Part II) *János Karsai*: Wolfram Alpha a természettudományok tanulásában (Wolfram Alpha in learning sciences)	*Lajos Szilassi*: Dinamikus geometria a GeoGebra alkalmazásával (Dynamic geometry with GeoGebra)
12.45 – 14.00	Lunch: Restaurant Gödör		
14.00 – 17.30	**Parallel sessions**		
	Researchers and PhD students (English) ***Kalmár Hall, Bolyai Institute***	***Teachers, high school students (Hungarian)***	***Winter Training group (Hungarian)*** ***Haar Hall, Bolyai Institute***
14.00 – 15.00	*Anett Vörös, Mónika Polner:* Applications of finite element methods, Part I	***Physics teachers*** ***Room 26, Dept. Med. Informatics*** *Péter Makra, Júlia Tandori*: Az Edaq530 mérőrendszer használata az oktatásban, I. rész (Using the Edaq530 measurement system in education, Part I) ***Mathematics teachers*** ***Bolyai Hall, Bolyai Institute*** *József Kosztolányi, Lajos Szilassi*: A GeoGebra alkalmazása a matematika tanításában, I. rész (Applying GeoGebra in teaching mathematics, Part I)	*János Karsai*: Wolfram Alpha és a Mathematica intuitív használata *(*Wolfram Alpha and intuitive usage of *Mathematica)*
15.00 – 15.20	Coffee break		
15.20– 17.30	*Judit Nagy-György, Katalin Virágh*: Tests of independence: challenges and solutions with R	***Physics teachers*** ***Room 26, Dept. Medical Informatics*** *Péter Makra, Júlia Tandori*: Az Edaq530 mérőrendszer használata az oktatásban, II. rész (Using the Edaq530 measurement system in education, Part II) ***Mathematics teachers*** ***Bolyai Hall, Bolyai Institute*** *József Kosztolányi, Lajos Szilassi*: A GeoGebra alkalmazása a matematika tanításában, II. rész (Applying GeoGebra in teaching Mathematics, Part II)	*János Karsai:* Bevezetés a Modellezésbe Mathematicaval, I. rész (Introduction to modeling with Wolfram Mathematica, Part I)

February 1

09.00 - 13.00	**Parallel sessions**		
	Researchers and PhD students (English) ***Kalmár Hall, Bolyai Institute***	***Teachers, high school students (Hungarian-English)*** ***Bolyai Hall, Bolyai Institute***	***Winter Training group (Hungarian)*** ***Haar Hall, Bolyai Institute***
09.00 – 10.00	*Anett Vörös, Mónika Polner*: Applications of finite element methods, Part II	*Dorottya Beringer*: Fraktálok az iskolában (Fractals in school)	*János Karsai*: Bevezetés a modellezésbe Mathematica-val, II. rész (Introduction to modeling with Wolfram Mathematica, Part II)
10.00– 10.15	Coffee break		
10.15– 11.30	*Róbert Vajda*: Symbolic geometry with Mathematica	*Đurđica Takači*: Process of mathematical modelling with GeoGebra and collaborative learning	*János Karsai*: Bevezetés a modellezésbe Mathematica-val, III. rész (Introduction to modeling with Wolfram Mathematica, Part III)
11.30– 11.45	Coffee break		
11.45– 13.00	*Árpád Takači*: Traffic flow – mathematical modelling	*Éva V.P. Rácz*: Matematikai módszerek a környezetvédelemben (Mathematical methods in environmental protection)	*József Kosztolányi, Attila Máder, Lajos Szilassi, János Karsai*: Workshop: Feladatmegoldás számítógépes eszközökkel (Problem solving with computing tools)

	Plenary session, Bolyai Hall, Bolyai Institute
13.15 - 13.45	Closing ceremony: Farewell, certificates
13.45 -	Lunch: Restaurant Gödör

The Host Institutions:

Bolyai Institute, University of Szeged

www.math.u-szeged.hu

Bolyai Institute – the mathematical institute of the University of Szeged – was founded in 1921 by the two world-famed professors of mathematical analysis, Frigyes Riesz and Alfréd Haar. Since then, the institute has become one of the most important centers for mathematics in Hungary, where several internationally renowned researchers have been working. More than 50 mathematicians – including four members of the Hungarian Academy of Sciences – work in the six departments: Algebra and Number Theory, Applied and Numerical Mathematics, Analysis, Geometry, Set Theory and Mathematical Logic, and Stochastics. The institute has a mathematical library with about 50000 volumes. The distinguished international journal Acta Scientiarum Mathematicarum founded by Riesz and Haar, and several mathematical textbooks are published by the institute.

Department of Medical Physics and Informatics, University of Szeged

www3.szote.u-szeged.hu/dmi/

The Department of Medical Physics and Informatics was established on the 1st July 2010 from the earlier Institute of Medical Physics and Biophysics and from the Institute of Informatics. Our department is the place of interdisciplinary activities. Medical Informatics serves the needs of medical and life sciences; but, at the same time, is an independent discipline in its own right. Hence the most important call is to promote the expansion of the information technological approach and practice in all the activities of the Faculty of Medicine; to promote health care and research more effective and productive; interdisciplinary education and research in medical and other life sciences, such as medical physics, medical informatics, biostatistics, and cerebrovascular and respiratory physiology.

The IPA HUSRB/1203/221/024 project:

Non-Standard Forms of Teaching Mathematics and Physics: Experimental and Modeling Approach

www.model.u-szeged.hu

Continuing the traditional cooperation on modern methods of teaching Mathematics and Sciences between the University of Szeged and the University of Novi Sad, this project focuses on the application of mobile tools, experimental and modeling approach in teaching. Open lecturing days, international compact courses, the traditional interdisciplinary Szeged – Novi Sad school, several conferences are organized. We continue the tradition of “Meet the Prof” lectures at schools. We develop several electronic teaching materials in physics and mathematics. To promote the computer-aided experiments in physics classes, Edaq530 tools are manufactured and will be installed in several schools of our cross-border region. Participation in our events and the availability of our developments is free. Details can be found on the project web site.