



LAMELIS

Lasers in Medicine and Life Sciences

Advanced summer school and workshop for undergraduate and postgraduate students of medicine and physics

11th — 20th July 2018

1. Invitation



The city of Szeged is proud to have been chosen as the site of one of the four pillars of a massive European laser project entitled **ELI (Extreme Light Infrastructure)**. **ELI-ALPS (Attosecond Light Pulse Source)**, a facility dedicated to ultra-short laser pulses, is now up and running: in January 2018, a Swiss research group successfully generated high-order harmonics in noble gases, and the complex is getting ready to offer beam-time to external users. Our summer school, **Lasers in Medicine and Life Sciences (LAMELIS)**, started out as a promotional event to popularise ELI-ALPS, but has since become a tradition in its own right, a regular forum to establish a knowledge base on modern applications of lasers in life sciences. It is now the fifth time the University of Szeged is hosting LAMELIS, **between 11th and 20th July 2018**.

This year a one-day satellite workshop will complement our summer school, devoted to recent developments in laser science, with special emphasis on the interaction between laser light and biological

samples. Leading scientists from recognised laser laboratories all over the world will give invited talks, and the poster session will provide LAMELIS students with the opportunity to present their scientific achievements.

The summer school is open to both medical students and physics students. Although the theoretical depth of talks is tailored for medical students, the programme can also benefit physics students as they can learn of medical applications of lasers directly from distinguished experts of the field and receive first-hand information on the current status of ELI-ALPS.

2. Speakers

- **Ferenc Bari** (University of Szeged, HU)
- **Beáta Bugyi** (University of Pécs, HU)
- **Elke Beyreuther** (Helmholtz-Zentrum, DE)
- **Tomáš Čížmár** (University of Dundee, UK)
- **Magdolna Gaál** (University of Szeged, HU)
- **Katalin Hideghéty** (University of Szeged, HU)
- **Petar Lambrev** (Biological Research Centre, Szeged, HU)
- **Martin Leahy** (National University of Ireland, IE)

- **András Lukács** (University of Pécs, HU)
- **Péter Maróti** (University of Szeged, HU)
- **Justin Molloy** (MRC National Institute for Medical Research, UK)
- **Jörg Pawelke** (Technische Universität Dresden, DE)
- **Adrian Podoleanu** (University of Kent, UK)

3. Seminars and laboratory visits

We also offer seminars in the fundamentals of optics and laser physics, and you will have the chance to gain hands-on experience with lasers in research laboratories and clinical facilities.



4. The city of Szeged

Szeged is the third largest city of Hungary and the regional centre of the Southern Great Plains. It is divided in two by the river Tisza. The name Szeged was first mentioned in a royal charter of 1183. It might have come from Hungarian 'szeg' (angle), referring to the corner the river Tisza makes with its tributary, the Maros, whilst some say it can be traced back to an archaic sense of 'szeg', meaning 'dark blond', and it refers to the colour of the water where the Maros joins the Tisza. The current cityscape was formed by the reconstruction following the great flood of 1879, which killed 165 people and destroyed about 5 600 buildings. An emblematic building of the city, the Votive Church, was erected in memory of the flood, and the sections of the outer boulevard bear the names of the cities that contributed to the rebuilding of Szeged: Rome, Brussels, Berlin, Paris, London and Moscow.

A city of 170 000, Szeged is a teeming cultural and intellectual centre with a student population of 25 000, many of whom are international students of medicine, giving the city a touch of multiculturalism. Still, it remains a quiet, human-sized, liveable and loveable city, whose atmosphere is created by the Tisza, by extensive green spaces and by enchanting statues. Boasting an average of 2 000 sunshine hours a year, Szeged has earned the moniker 'the City of Sunshine'. In addition to its theatre and symphonic orchestra, in the summer Szeged also hosts the Open Air Festival, the history of which goes back more than 80 years. The Hungarian festival season concludes with the Szeged Youth Days (SZIN) each year since 2003.



5. The University of Szeged

The University of Szeged was established in 1921 with the relocation of the University of Kolozsvár (Cluj-Napoca) founded in 1872. Since then, it has grown to be one of the most prestigious universities in Hungary, ranked as number one amongst Hungarian universities and in the top 300 in the world in three consecutive years (2003, 2004 and 2005). It is now organised into 12 faculties, which provide education for 25 000 students and employ more than 6 000 people, 1 000 of which are teachers.



Alongside internationally noted contributions to mathematics, information technology, physical and material sciences, the University is also noted for its strong focus on life sciences, augmented by

close ties to the Biological Research Centre of the Hungarian Academy of Sciences. The most significant accomplishment under the auspices of the University of Szeged so far has been the discovery of vitamin C and the exploration of the citric acid cycle, made by Albert Szent-Györgyi and rewarded with a Nobel Prize in 1937.

6. Practical information and fees

Admission criteria

The programme is open to a maximum of 45 undergraduate or postgraduate students in the fields of medicine or physics. If necessary, selection will be made considering the students' motivation, English level and previous research experience, if any.

Application

Please download the pdf application form from www.lamelis.eu/appform/ApplicationForm.pdf and send it to lamelis@med.u-szeged.hu.

Application deadline: 30th April 2018.

Fee: 200€. This fee includes tuition, accommodation, lunches, scheduled excursions and extracurricular activities. We do not cover the costs of passports, visas, health insurance, travel to and from Hungary and other personal expenses.

7. Further information

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Youtube:

- 2014: <http://tinyurl.com/lamelis2014>
- 2015: <http://tinyurl.com/lamelis2015>
- 2016: <http://tinyurl.com/lamelis2016>
- 2017: <https://tinyurl.com/lamelis2017>