ICPS 2011: BUDAPEST

THE INTERNATIONAL CONFERENCE OF PHYSICS STUDENTS

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ICPS is an annual conference run by IAPS, the International Association of Physics Students (often "{iaps}"). IAPS functions mainly to foster communication and collaboration between physics students across the world. This is accomplished through its journal, jIAPS, and multiple meetings and activities throughout the year, of which ICPS is certainly the most popular. Other common activities include organized trips to notable research centers such as CERN.

IAPS membership is composed of national committees (NC), local committees (LC), and some individual members (IM). Any student who is a member of IAPS, through a NC for example, is permitted to attend any of the IAPS events.

This year's ICPS conference marked the 25th anniversary of ICPS (and the 24th year for IAPS). Since its founding in 1986, the conference has been held in many cities across Europe, but ICPS returned to its home in Budapest in 2011 to celebrate this milestone. As has become the norm, the conference timetable included mostly student lectures and poster presentations, as well as invited lectures, parties, and an excursion.

The 2011 ICPS began on Aug 11 with arrival and dinner. The conference was then officially begun on the morning of Aug 12 with the opening ceremony. Though short and informal, the opening ceremony was given by one of the ICPS founders who also served as the first president of IAPS: Patroklosz Budai. His short talk emphasized the importance of the people –and their interaction - in science. He quoted Heisenburg saying "Science is made by man, a self-evident fact that is far too often forgotten."

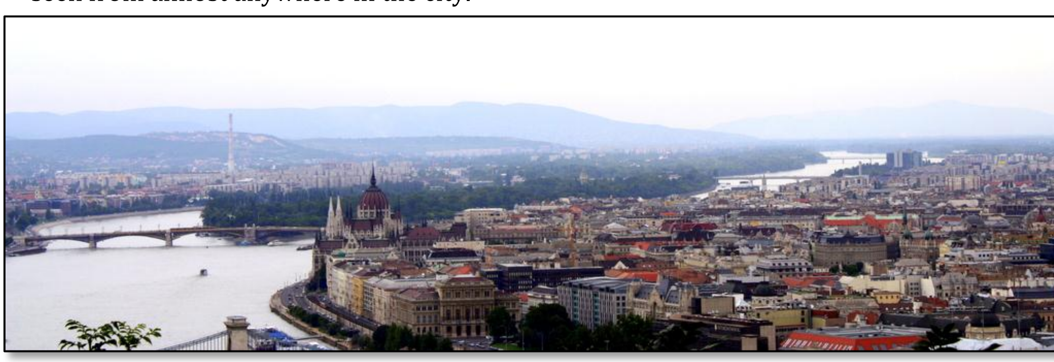
After the opening ceremony, Dr. Ferenc Krausz from the Max-Planck-Institute in Germany gave a wonderful presentation on his research team's work on so-called attophysics. This novel branch of physics involves the use of attosecond long pulses of UV light. Perhaps most notably, it has been shown that these pulses can be used to image the motion of valence electrons. For example, attosecond pulses can eject two specific electrons from an atom and measure the timedelay involved with their ejection. This is an interesting result that, as of now, has no definite answer – though they believe that the phenomenon arises from differing interactions with neighboring bound electrons. In future work, Dr. Krausz and his researchers hope to combine measurements on atomic-length scales (e.g. x-ray diffraction) with measurements on atomic-time scales (attoseconds).

Follow Dr. Krausz, Dr. Carlo Rubbia spoke to the participants. Dr. Rubbia is known for his work on nuclear interactions which led to a Noble Prize in 1984 which he shared with Simon van der Meer for the discovery of W and Z bosons. For his talk, Dr. Rubbia focused on the problem of sustainable energy for the future. He led an interactive, question-based session on the topic, which focused on the advantages and disadvantages of alternative energy sources. He also emphasis one important idea: CO_2 released by humans will remain in the atmosphere for hundreds of years or more.

After Dr. Rubbia's discussion and lunch, the ICPS participants broke into groups to explore the city of Budapest. Among other sites, I walked to the Citadel and Buda Castle.

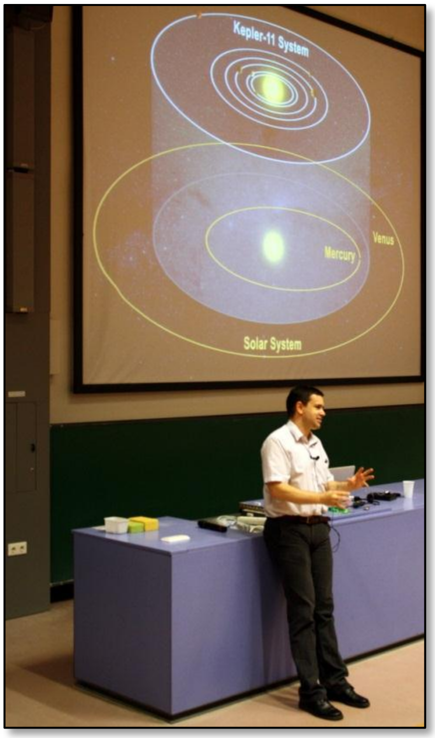
The citadel on top of Gellert Hill can be seen from almost anywhere in the city.

Within the walls of Buda Castle



The top of Gellert Hill offered spectacular views of the city.

On the second day of the conference, the day began with multiple student lectures, broken into three lecture halls (this format was used for all sessions of student lectures). This session included my lecture which was accompanied by talks from Biljana from University of Novi Sad as well as Deniz, Nehir and Sirin from Bosphorus University who also spoke on topics related to medical physics.



Laszlo Kiss talks about NASA's
Kepler mission

This first session of student lectures was follow by Dr. Laszlo Kiss' invited talk. Dr. Kiss works on the NASA's Keppler mission which is a space telescope searching for earth-like planets. The mission expects to find hundreds of planets over the next four years by observing the dip in a star's brightness as a planet passes in front of it.

Next, after lunch was an IAPS workshop. Alough most ICPS participants did not attend this meeting, it began with a mini birthday celebration for ICPS, including cake.

ICPS Birthday Cake

Following cake, the IAPS workshop included a description of IAPS as well as talks from the various local and national committees about the state of their student organization activities. Along with Thomas and Lauren, the other delegates from the USA, I presented about the state of SPS and Sigma Pi Sigma in America.

Jason Bartell's poster presentation

The next day, Aug 14th, included many more student lectures as well as the poster session in the afternoon. Some of the many topics covered this day were gravitational waves, particle astrophysics, and even such things as "The Life and Loves of Erwin Schrodinger" (given by Mischa Stocklin from Switzerland). The poster session in the afternoon similarly covered a wide variety of topics including magnetic frustration (presented by Jason Bartell from the USA), quantum fluid dynamics (by Chen Lieh-Lieh from China), and the Gamma Knife technology (by Arpad Toth of Serbia).

The next day, Monday, was left open for an excursion. Although there were many choices, I decided to join the "Tourbulence" tour which included a boat ride up the Danube river to the town of Visegrad. The boat ride was very long and felt longer in the hot sunny weather. Upon arrival, though, the town was calm and quaint. Along with Thomas and Jason and others from our boat, I walked to the top of the nearby Visegrad castle before returning to Budapest via boat.

Visegrad countryside

Tuesday morning included more lectures, both student and invited. Student lectures included a notable talk from Nikola Markovic from the University of Zagreb on Supercritical Water Cooled Reactors. This morning also included talks from Thomas Markovich from the USA on supersymmetric quantum mechanics as well as Lauren Richey's talk on bio-inspired photonic crystals. These talks were followed by another invited guest lecture: Dr. Ferenc Mezei. Dr. Mezei spoke about neutron sources and the infrastructure of large scale research centers. He is specifically interested in using neutrons to look at atoms and how they move.

Tuesday afternoon, then was occupied by the Annual General Meeting if IAPS and ICPS. Among others, the purpose of this meeting was to elect new positions to the executive committee, confirm new local and national committees to IAPS, and discuss the possibility of an international scholarship to bring impoverished students to future ICPS meetings. This meeting also selected the location for ICPS 2013: Edinburgh, Scotland.

Wednesday, the last full day of the conference, included many student lectures followed by a final guest lecture and closing ceremony. Student lectures again covered a wide variety of topics, including nanomagnetism, nanoparticles, and ultrafast electron imaging. The final guest lecture was given by Dr. Sandor Katz who spoke about high energy physics and building a super computer by combining many graphics cards.

Finally, the closing ceremony included multiple short talks from both founding and current ICPS leaders. They officially announced the location of ICPS 2013 as well as best-lecture and best-poster awards.

Overall, ICPS was a very rewarding experience. The quality of student lectures was not usually professional, but they covered a wide variety of topics and created a welcoming and informal environment to share experiences in physics research, education and compare long-term life goals.

Returning ICPS founders all-together again at the closing ceremony

USA delegates to ICPS outside the dormitories
(Not pictured: David Jacome)