

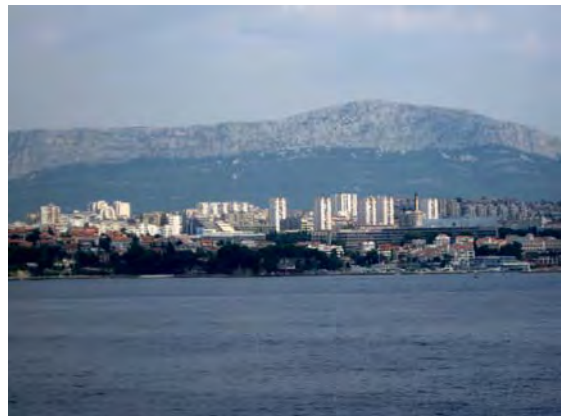


XXIV International Conference of Physics Students

Split, Croatia

August 10-18, 2009

Feature Article by Joshua Fuchs, Rhodes College



The International Conference of Physics Students (ICPS) is the annual conference of the International Association of Physics Students. This year's conference was the 24th in a row and was held in Split, Croatia from August 10 until August 18, 2009. It was organized entirely by the Student Section of the Croatian Physical Society. ICPS truly is a conference for physics students run by physics students. There were around 480 participants representing 32 different countries. 99 student lectures were presented, along with 55 poster presentations and 7 guest lectures. Gabe Caceres and I received the Society of Physics Students Outstanding Student Award for Undergraduate Research and got to represent SPS and the United States at the conference. Most days were organized the same way with student lectures in the morning followed by a guest lecture before lunch. The afternoon activities varied and most nights were occupied by different parties.

The dorm (Učenički Dom Split) where all participants were housed.



Saturday, August 8th

I arrived in Split a few days before the start of ICPS to travel around. After 19 hours of travelling, I finally made it to Split. On the bus ride from the airport to the harbor, I met a few Hungarians that were on their way to ICPS. We decided to then walk the 1.5 miles in 95°F to the dorm which left me exhausted. I ended up rooming with two of the Hungarians I had met at the harbor. I quickly noticed once I got to the room the lack of both air conditioning and a fan. My Hungarian roommates solved this issue by going to the beach but I needed some time to rest and stayed behind. After a brief nap, I met some people from the UK and had dinner with them. We then walked around the city center a little while before returning to the dorm for the evening.

Sunday, August 9th

Croatia has over 1,000 islands located in the Adriatic Sea. With Split being on the coast, there are quite a few near it. I decided to use Sunday to take a trip over to one of the islands. Some of the ICPS organizers suggested the island of Brač, the third largest island in the Adriatic Sea. One of my Hungarian friends was interested in going as well. The city of Supetar was the closest location on Brač and took a 50 minute ferry ride to reach. The weather was great so we sat on the upper deck of the ferry and enjoyed the view. We spent some time walking around Supetar before eating lunch. After that we went to one of the beaches to relax. I forgot my swimsuit but I wanted to test the water so I waded in. The water



Me wading in the Adriatic Sea while in Supetar.

was a bit cool but was refreshing. Back at the dorm, I was by the registration desk when I heard the guy in front of me asking about restaurants in the area. I did not have any plans for dinner so interrupted and suggested we go together. That is how I met Ali from Iran. On our way out of the dorm we ran into Pedro and Sérgio from Portugal that Ali knew from ICPS last year. They joined us and we found a pizza place close to the dorm. When we returned from dinner you could tell that many more people had arrived and were having a spontaneous party outside the dorm. I joined in and met people from Poland, Ukraine, Finland, and Germany. Everyone was very excited to meet someone from the United States and wondered how long it took me to get to Split. I in turn thought it was very cool to meet people from all over Europe! This was also the first time I realized the importance of the nametags at ICPS. It was often much easier to just show or read someone's nametag than try to understand the pronunciation.

Monday, August 10th

At breakfast Monday I met Pao from both Thailand and the UK and Issam from Morocco. They told me they were going to the beach with some people and invited me along. We joined people from Iran, the UK, Spain, and Turkey at a beach about 8 minutes away from the dorm. The beach was very crowded and was rocky, a first for me. The rocks were small, though, and turned out to be more comfortable than I expected. I was taught a new game popular in Turkey and Iran called ye ghol do ghol. It involved using some of the smaller rocks on the beach, throwing them up, and trying to catch them. The game was harder than it first seemed and took me a little while to have any success. We stayed at the beach until it became too hot and we all started getting hungry.

This was my first European lunch experience and it lasted 2.5 hours. I cannot recall ever being at lunch for that long so this was a strange experience for me. It did not seem to bother anyone else so I just went with it and enjoyed it. That evening was the Welcome Party. This was the first organized event of ICPS and most people had finally arrived. The music they played was universally agreed to be pretty bad, with few exceptions. This was the night I realized how much Europeans love the beach. I went with a group down to the beach around midnight and we saw a few other groups of ICPS people there. Between the fewer people and the cooler temperature, I enjoyed the beach much more at night. Leon from Croatia told us that when most Croatians go on vacation to the beach, they reverse their sleeping schedules so they come to the beach at night for the very same reason.



Me and Gabe during ICPS.

Tuesday, August 11th

Today was the first full day of ICPS. It began with the Opening Ceremony where we heard welcoming remarks from the President of the Croatian Physical Society, a representative from the Croatian Ministry of Science, Education and Sports, a Professor at the University of Split (the venue for the scientific program of ICPS), and the President of the local physics society in Split. All of them were very happy that ICPS was being held in Croatia and talked about the



The Bura Wind demo.

history and current status of physics in Croatia. As any great physics conference has, we were treated to three different demos next. The first I had not seen before was called Bura Wind. The demo is an example of Croatian Adriatic Winds called Bura Winds. It was done by sublimating dry ice and having it go down an enclosed incline, simulating a hydraulic jump. The next demo was the Ruben Tube with sound waves and fire and verified to me

that physicists all over the world enjoy fire. The last demo used an electromagnet to levitate a plate. After a short break we heard a guest lecture from Dr. Silvia Tomić, a physicist at the Institute of Physics in Zagreb, Croatia. She talked about her research in solid state physics with biopolymers and DNA. At lunch I met Ole from Germany. I was telling him about the research I would be presenting on and found out that he had also done a microgravity flight with the European Space Agency. We got to swap stories about each of our experience and compare how the ESA and NASA conduct their microgravity programs. I was very excited to meet someone who had a similar experience to the one I had had! After lunch was the first section of student lectures. I attended ones on topics ranging from quantum computing to particle physics to astrophysics. One thing I came to really enjoy about ICPS was the variety of the student lecture

topics. I loved having so many sub-fields of physics being presented. There was another guest lecture that evening given by Dr. Stuart Cunningham from the National Oceanography Centre in the United Kingdom. He talked about large scale ocean circulation in the Atlantic Ocean and how his research shows evidence of global warming. That evening was the Croatian Party. We were shown a Croatian tourism video and treated to three songs by a local a cappella group. After that, different types of Croatian food was set out on the tables for everyone to taste. I tried a few different things but did not go back for seconds. After another late night trip to the beach, I went to bed exhausted from the first day of ICPS but loving every moment.

Me with some friends from Portugal during a late night trip to the beach.



Wednesday the 12th

The student lectures in the morning were pretty interesting and just as diverse. I realized listening to these lectures from people whose native language is not English that they all apologized for their poor English speaking skills. I did not have trouble understanding them and thought this was interesting. The guest lecture today was from Dr. Hendrik Ferdinande from Ghent University in Belgium. He talked about the Bologna Reforms which in 1999 tried to standardize higher education across Europe and different things that have happened to physics in Europe as a result. That afternoon we had some free time. I went with four of my friends: Leon (Croatia), Robin (UK), Pao (Thailand and the UK), and Issam (Morocco), to walk around Split. We

realized that the group of us were originally from 4 different continents, which I thought was pretty cool. We went first to Bačvice, the most famous beach in Split. We stayed there briefly before walking up Marjan, a hill just next to the city center. The top provided a great view of Split and the Adriatic Sea. On the top we ran into a group of ICPS students from Finland. We all stopped by a café on the way down Marjan to rest, socialize, and enjoy the sunset. The National Party, where participants prepare food



The whole group at the top of Marjan.

and drinks from their country, was Wednesday night. The National Party turned out to be my favorite party. Growing up in Texas, I felt obligated to bring some Texas drink coasters and wear my Texas flag t-shirt. Most people understood the shirt and thought it was funny. I enjoyed walking around to different tables trying as much food as I could. Bread seemed popular to many of the countries. Later on in the evening, each country was given the opportunity to make a presentation of some sort. Gabe and I decided to pass and listened as most people sang songs from their countries.



Trying some coffee from Saudi Arabia.



The German table during the National Party.

Thursday the 13th

My presentation was today. I got up early so that I could look over my presentation one last time. I presented on some research I have been working on at Rhodes College for two years, so I felt pretty confident talking about it. The title of my presentation was “Binary Orbital Motion of Electrically Charged Spheres in Weightlessness” and was about a research project conducted with six undergraduate students and two faculty members from Rhodes College. The experiment was conducted through NASA’s Reduced Gravity Student Flight Opportunities Program which allows undergraduate research teams the opportunity to conduct an experiment in a weightless environment. I showed some cool video footage of the experiment which I always enjoy showing people. I had about 60 people in my lecture and got some good questions at the end. I felt good about the presentation and was glad to have it behind me. The guest lecture today was by Nobel Laureate Dr. Klaus von Klitzing. He talked about the evolution of nanoelectronics and where he thought the future might lead. That afternoon we received city tours from student volunteers. We saw the Diocletian Palace, a statue of Gregory of Nin, the National Opera House, the thinnest walkway in the world, and walked up Marjan Hill again. It was nice taking the tour because the guide gave us information about what we saw. No party was planned for Thursday night. I went with some friends from Portugal, the UK, Thailand, Croatia, and Hong Kong to Bačvice. I enjoyed the beach so much more at night. There were very few people there and the weather was much more enjoyable.



The Diocletian Palace.



The view of Split from the top of Marjan Hill.

Friday the 14th

More student lectures were held first thing in the morning. The guest lecture today was by Dr. Daniel Denegri from the Atomic Energy Commission in France. He gave us a status update on the LHC and some of the future results expected. This afternoon, Gabe and I got to attend the Annual General Meeting (AGM) of the International Association of Physics Students (IAPS). I had been warned that the meeting usually lasted 8-10 hours but we lucked out and finished in a record 5.5 hours. I do think that having no air conditioning in the room helped things move quickly. During the meeting we discussed what IAPS had done the previous year,



Voting during the AGM.

elected new students to the Executive Council of IAPS, and looked over the budget. We heard a report from the 2010 ICPS Organizing Committee about the progress being made to host ICPS in Graz, Austria next year. At the end of the meeting we listened to bids from Hungary, Finland, and Portugal to host ICPS in 2011. Hungary won the vote and will host ICPS in Budapest in two years time. During the party that night, a karaoke machine got set up. They played mostly American songs that people recognized, and it turned into everyone crowding around the screen and singing the songs together. It was one of my favorite moments of ICPS.





The Sea Organ in Zadar.



Tour of Zadar.

Saturday the 15th

A number of different excursions around Croatia were offered Saturday. Almost half the participants signed up for rafting. I figured I could go rafting in the U.S. so I signed up to go to Zadar, the 5th largest city in Croatia. The bus ride there was 2 hours, most of which I spent catching up on sleep. Our tour guide was not from Zadar and got lost trying to find various landmarks. We eventually convinced him to let us go free so I joined some Portuguese and Spaniards at a café. After that we went to the Sea Organ, which was very cool. It is made of pipes along the sea wall that produce different musical notes as the water splashes against the wall. It was very relaxing to listen to (I suggest looking it up on YouTube). We sat there for a while and listened to the Sea Organ. I stuck my feet in the water which made it even better. We had a free night that night and I went to Bačvice with some of the Portuguese again. Once again, it was nearly empty and a lot of fun, though I probably stayed up too late!

Sunday the 16th

Student lectures were first on the agenda in the morning. The guest lecture today was by Dr. Peter Biermann of the Max Planck Institute for Radio Astronomy in Germany. He discussed the research he does on ultra high energy particles and cosmic rays from massive star explosions. This afternoon was the poster session. There were 55 posters so it took me a while to go through

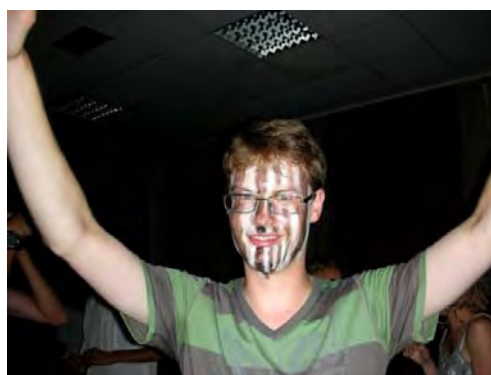
them all. Just like the lectures, there was a large variety of physics presented and I enjoyed going through them. The Costume Party was tonight. I learned that this is an ICPS tradition but I still was not sure what to expect. I had received a flight suit from my cousin in the Air Force that I wore. I had forgotten how hot the flight suit was and suffered a little in the heat. Almost everyone was dressed up in a variety of outfits. There were not too many physics related costumes- the Doppler Effect was my favorite. This was my second favorite party of ICPS.



Me with Nicola (Italy). Yes, he is carrying a bed with him.



Me with Issam (Morocco) and Lidia (Portugal).



Clemens (UK) doing the Doppler Shift.



Monday the 17th

The final section of student lectures were this morning. The final guest lecture was given by Dr. Leandra Markić from the University of Split. She talked about superfluidity in quantum clusters. The closing ceremony was this afternoon. This made me finally realize the ICPS was coming to

a close! Some of the organizers spoke and thanked everyone for coming. We also got a preview of next year's ICPS in Graz, Austria. Everyone in the room was ready for next August to be here so that ICPS could start again! The final event of ICPS2009 was the Farewell Party tonight.

There was a lot of picture taking and reminiscing about the previous 9 days. I realized how good of friends I had become with some of the people after spending so much time with them.



Me with Peter (The Netherlands).



Me with João (Portugal) and Mariana (Portugal).



Tuesday the 18th

I stayed one day extra after ICPS. I went back to Brač (the island I went my first day) with my friends Konrad (Germany), Jessica (Ireland), and Clemens (UK). Instead of staying in the city of Supetar, we took an hour bus ride over to Bol, advertised to be the most beautiful beach in all of Croatia. The beach was very crowded and we barely managed to find a spot to sit down. The water was amazingly clear and it was so easy to float in the water. There were numerous

windsurfers out in the water. Back in Split, I went to dinner with Anton (Finland), Issam

(Morocco), Jessica (Ireland), Konrad (Germany), and Ali (Iran).

It was a fun and long last dinner in Split. My flight out of Split

left the next morning at 7:40 a.m. To get to the airport I had to

catch a bus from the city center and nobody knew exactly

when they started in the morning. I decided to leave the dorm

at 4:00 a.m. I had been debating all day whether or not to go

to sleep. We got back from dinner around midnight and I

thought I would go to sleep. I went to say bye to my friends Robin, Pao and Sahra and found out

they were about to go to the beach. I decided it would be more fun to do that and more in the

spirit of ICPS so I agreed. By the time we returned I had just enough time to pack before leaving

for my 24 hour trip home. There were still about 20 people up when I left that wished me off.



Bol, the most famous and beautiful beach in Croatia



The water was very clear.



Me with Konrad (Germany), Jessica (Ireland), and Clemens (UK).

Final Thoughts

ICPS2009 was an amazing experience. I feel so fortunate to have gotten to attend and represent SPS and the United States. I made friends with and got to know physicists from all over the world. Many of the participants I will probably meet again because they are around my age and we have whole careers in front of us. I would like to thank SPS for providing this opportunity. I would also like to thank the other members of the Rhodes Binary Orbit Team (RhoBOT) for allowing me to present our research at ICPS.