



Parker Centre

Student-Industry Research Program

Winter 2007

Symposium

Program and Student Biographies



bhpbilliton



Student-Industry Research Program Provides Research Experience for Local and International University Undergraduate Students

The Parker Centre Student-Industry Research (S-IR) Program is designed to give undergraduate students some insights into the minerals processing industry and its research. It is fully sponsored by industry. Projects ideally are scoped by industry sponsors and designed to investigate aspects of hydrometallurgy processing that are relevant to current industry needs and practice. The program provides students with an opportunity to develop networks with researchers and potential employers while providing industry with an introduction to top student researchers who are potential future employees. The ultimate aim of the initiative is to entice students to do further research in hydrometallurgy as part of their studies and/or enter the minerals industry when they have finished their degree.

The Summer S-IR Program participants have come from as far afield as South Africa, with ongoing links with the University of Cape Town and Brazil's Universidade Federal de Minas Gerais. With support from some of the Centre's Industry Participants, the S-IR Program has been extended in 2007 to enable Northern Hemisphere students to participate during their summer break. Through this initiative it is hoped to foster both industry and research affiliations with promising students worldwide. This year is the first Winter S-IR Program, with four Russian students working with the Centre's Research Participant, CSIRO Minerals, and sponsored by BHP Billiton. It is hoped to extend this in future years to include students from other countries.

Successful applicants are employed as research assistants for eight to twelve weeks either over the Australian summer university vacation or during the Northern Hemisphere summer break.

Requirements of the program are the completion of an 8-12 week research project under the supervision of a Parker Centre researcher. They work on meaningful research projects with Centre researchers, at CSIRO Minerals' Waterford Laboratories, Curtin University of Technology, Murdoch University or the University of Queensland. All students present their results at a Student Symposium and provide a technical report to the Parker Centre and the sponsoring company/companies.

If your company is interested in participating in this program by sponsoring students, please contact the Parker Centre at hydrocrc@parkercentre.com.au.



***The Parker Centre wishes to thank the sponsors of the
2007 Winter Student-Industry Research Program:***

BHP Billiton

**CSIRO Minerals, Waterford Laboratories (Parker Centre)
University of Western Australia, Department of Mathematics and
Statistics**

***Thanks also to the many supervisors and co-supervisors involved in
guiding these young researchers in their projects during the 2007 winter:***

From CSIRO Minerals

**Keith Barnard
Goutam Das
Matthew Jeffrey**

**Felicity Perrot
Peter Smith
Helen Watling**

From BHP Perth Technology Centre

**John Baines
Domenic Furafo
Anis Inayat-Hussain**

**Mark Maley
Marnie Pascoe
Ken Taylor**

From University of Western Australia

Neville Fowkes

Thank you also to our judging panel:

Helen Watling, CSIRO Minerals, Waterford Laboratories

John Baines, BHP Billiton

Neville Fowkes, UWA



**Student-Industry Research Program
Winter 2007 Symposium**

Parker CRC for Integrated Hydrometallurgy Solutions

When: Friday 24 August

Where: The Auditorium, ARRC

26 Dick Perry Avenue, Kensington

Time: 1:15 - 6:30 pm

Time**Presentation**

1:30 – 1:40

Welcome address: Parker Centre & BHP Billiton

Session 1 – Parker Centre Students: CSIRO Minerals, Waterford Laboratories**Chair: Matthew Jeffrey (CSIRO Minerals)**

1:40 – 2:00

ANNA GROSHEVA: Bioleaching of chalcopyrite in presence of copper SX reagents

Supervisor: Felicity Perrot

2:00 – 2:20

NIKITA KOVALENKO: Rheological studies of arid region nickel laterite suspensions

Supervisors: Goutam Das, David Muir

2:20– 2:40

DENIS SHISHIN: Investigating metal-ligand complex formation in synergistic solvent extraction systems

Supervisor: Keith Barnard

2:40– 3:00

IVAN RAGUZIN: Aspects of the total available alumina extraction test for evaluating bauxites

Supervisor: Peter Smith

3:00 – 3:30*Afternoon Tea***Session 2 – UWA Students: School of Mathematics and Statistics, UWA.****Chair: David Muir (CSIRO Minerals)**

3:30 – 4:05

SVETLANA ARTEMOVA & ROMAN AVDEEV: Electromagnetic response of thin resistors in petroleum exploration

Supervisors: Neville Fowkes, Anis Inayat-Hussain (BHP Billiton)

Session 3 – BHP Billiton Students: Perth Technology Centre

4:05 – 4:25

VIKTORIA PROSTAKOVA: Some factors affecting nickel precipitation with magnesium oxide

Supervisors: John Baines, Domenic Furfaro, Mark Maley, Ken Taylor

4:25 – 4:45

INESSA SDOBNOVA: Raisebore performance at Olympic Dam

Supervisor: Marnie Pascoe

4:45 – 5:05

ANNA SHUBSKAYA: Magnesium hydroxide precipitation

Supervisors: John Baines, Domenic Furfaro, Mark Maley, Ken Taylor

5:05 – 6:30

Presentation and Function

Student Biographies**Svetlana Artemova**

Moscow State University, Leninskiye Gori, Moscow, Russia

Department of Mathematics, University of Western Australia

I was born and grew up in Voronezh, Russia. Even at school I was mostly interested in exact sciences. That is why I made my decision to study mathematics further at university. Also, I always enjoyed learning foreign languages.

Now I am an undergraduate student in the Department of Computational Mathematics and Cybernetics at Moscow State University (MSU) and next year I will complete my five year diploma. I have studied different branches of mathematics and computer sciences. For the last two years of education I have specialized in applied mathematics, in particular optimization and optimal control. My background also involves knowledge of different programming languages that has allowed me to work as a programmer for a few months.

I decided to apply for the BHP summer practice to improve my professional skills and my knowledge of English, to get a valuable experience of working at a foreign university and to get acquainted with the life and people in Australia. In the future after graduating from MSU I plan to do a PhD, preferably overseas, and possibly in Australia.

**Roman Avdeev**

Moscow State University, Leninskiye Gori, Moscow, Russia

Department of Mathematics, University of Western Australia

I was born in Irkutsk, Russia, and lived there before my entrance to university. My interest in exact sciences and especially in mathematics arose in childhood. During my studies in school I successfully participated in lots of mathematical competitions. This determined my choice to study mathematics at university.

I have just finished my fourth year at the Department of Mathematics and Mechanics of the Moscow State University where I obtained a wide background in pure mathematics. Next year I intend to complete my five year diploma.



Work at the University of Western Australia has given me a great experience in applied mathematics. Now I understand some ways of using mathematics for industrial problems and have seen some features which distinguish pure mathematics from applied mathematics.

This program also allowed me to get acquainted with Australia. Its lifestyle, its nature is very different from those of Russia. Here I have had practice in English, have learned some new things and have met a lot of interesting people. I am pleased to be involved in this program.

After I have finished my studies at the university I would like to continue my research work and proceed to doing a PhD. Thereafter, I want to work as a researcher.



Anna Grosheva

Moscow State University, Moscow, Russia

Parker Centre - CSIRO Minerals, Waterford Laboratories

I am a 5th year student in the Faculty of Material Science at Moscow State University, which is the largest and most famous university in Russia. I have recently finished my Bachelor's degree in chemistry and am now working towards my Masters. I hope to finish this in the next two years.

Originally I am from Obninsk, a small town not far from Moscow, where I grew up and went to school. I became interested in chemistry and mathematics at school. These lead me to choose the Faculty of Material Science at university. Since then I have been working in the University Laboratory of Chemistry Thermodynamic and taking part in different students' conferences with my scientific projects.

This is the second time I have come to Australia. Last winter I spent three months working for BHP Billiton in the Newcastle Technology Centre (NTC). I have found that living and working here in Australia gives me very good experience and allows me to practice my English and professional skills. Moreover, by working at NTC and here at CSIRO Minerals I have had a chance to see how people work and communicate in a large, commercial research centre.

Personally, I have enjoy staying in Australia very much. It is interesting for me to experience another culture, and to see such wonderful nature. I have had the opportunity to visit some amazing sights and meet many wonderful people during my time here.

In the future I intend to finish my Masters degree in Moscow. Then, if I have the opportunity, I would like to take a PhD overseas, possibly in Australia.





Nikita Kovalenko

Moscow State University, Moscow, Russia

Parker Centre - CSIRO Minerals, Waterford Laboratories

I was born in Krasnodar, the South of Russia and now live in Troitsk, the Moscow Region. When I was approx 10-12 years old I decided to become a doctor. I liked biology and knew much about humans' health. If I wanted to arrive at my goal I had to study biology and chemistry. Gradually chemistry became my favorite subject and I have chosen to build my professional career in the area of chemistry.

I now study at Moscow State University, Department of Chemistry. I have completed three years studying and working in the Laboratory of Physical Chemistry. I enjoy studying chemistry, so I'm happy to spend my vacation in Australia training in rheology measurement at the CSIRO Minerals laboratory, Waterford. I also like it because I've never worked with this branch of chemistry before, and get great experience and gain new knowledge. This training has helped me to develop my communication skills with people in the laboratory and it will be good for my future.

In the next two years I hope to finish my degree. After that I might gain more work experience before starting my PhD degree. In the future I hope to work in the area of hydrometallurgy. I'm sure my training will help me choose the right place for my future work and I'll like it.



Viktoria Prostakova

Department of Materials Science, Lomonosov Moscow State University

BHP Billiton Perth Technology Centre

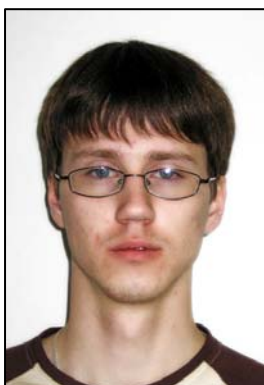
I was born in Estonia, a small, nice and peaceful country of the European Union. After finishing school in Estonia, I had a chance to enter Moscow State University. Now I am a 3rd year student in the chemistry department of Moscow State University, majoring in chemistry.

Although I am only a 3rd student, I have gained quite valuable experience in chemistry. When I was a school student, I took part in some national and international chemistry competitions. As I entered Moscow State University, I practiced chemistry in many laboratories of the chemistry department. A variety of fields of chemistry were of particular interest to me, including biochemistry, organic and physical chemistry. A year ago I took a special interest in physical



organic chemistry and, finally, I joined the Laboratory of Physical Organic Chemistry, where I am still working as a Master Diploma student. I am doing well at university (GPA 4.95 of 5.00). A career as a chemist is extremely appealing to me, so, it was of great use to obtain technical experience abroad working in the Hydrometallurgy Group of BHP Billiton at the Perth Technology Centre.

After graduating from Moscow State University, I would like to pursue postgraduate research abroad due to my love of both chemistry and traveling. It would be a great chance for me to work in some of the other BHP Billiton Technology Centres so that I can further demonstrate what I can contribute to this company.



Ivan Raguzin

Department of Chemistry, Moscow State University, Russia

Parker Centre - CSIRO Minerals, Waterford Laboratories

I was born in Raduzhny town, Vladimir region, where I lived most of my life. I have completed the third year at the Department of Chemistry, Moscow State University. My training has been very comprehensive and I have worked in different branches of chemistry: inorganic (finding new materials for electrodes, used in electrolytic obtaining of aluminium) and organic (finding the ways of synthesis anticancer substances by synthetic methods).

I hope that my three months work experience will improve my view and knowledge in inorganic chemistry of aluminium, in using of new equipment and help me to connect with industries and research centres in Australia.

In the next four years I want to finish my education in Russia and gain a lot of experience for my further work. I would like to become an engineer in chemical company or be in a position to undertake projects for these companies.





Inessa Sdobnova

Lomonosov Moscow State University, Moscow, Russian Federation

BHP Billiton Perth Technology Centre

I was born in Moscow, the capital of Russian Federation, and I have lived there all my life. I just have completed my fourth year of university education and got a Bachelor's degree at the Geological Faculty of Lomonosov Moscow State University. My specialization is computer technologies in geology. I chose geology as my profession, because rocks and different geological processes are very interesting for me.

Work experience with BHP Billiton and the Parker Centre Student-Industry Research Program is a good opportunity to work in a large mineral resources company and to improve my knowledge of geology and English.

In the next two years I would like to finish my Master degree at Moscow State University, specialising in 4D-modelling in geology, and then start to work in a mineral resources company in Russia or overseas.



Denis Shishin

Moscow State University

Parker Centre - CSIRO Minerals, Waterford Laboratories

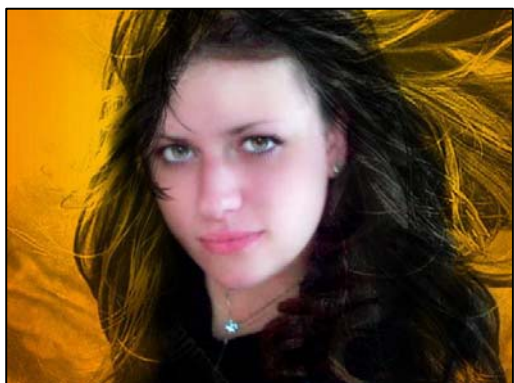
Denis Shishin is an undergraduate student of the Moscow State University. Born in the southern part of Russia he now lives in a suburb of Moscow. He got interested in science in childhood and was sometimes punished for his chemical experiments at home.

By now he has completed three years of a five year chemistry diploma. His studies to date have encompassed different branches of chemistry, although in the final two years he will focus predominantly on physical chemistry.

Working in Australia has given him a lot of experience not only in studying English but also in use of new equipment. He became acquainted with Australian everyday life and nature and had a wonderful time visiting museums, sights and traveling on weekends.

Denis is eager to continue studying after he completes his diploma and is considering the prospect of undertaking a PhD abroad, possibly even here in Australia!





Anna Shubskaya

Moscow State Academy of Fine Chemical
Technology

BHP Billiton Perth Technology Centre

I was born in Moscow – Russian Federation. I have just completed the fourth year of my education and got my Bachelor's degree. I am specializing in polymeric materiology at the Moscow State Academy of Fine Chemical Technology.

The decision to devote my life to chemistry was made after a part time job at a big industrial fair named "Interplastic". The huge variety of products and technologies made a very sincere impression and influenced my choice.

During the last two years I worked part-time in a company which is active in the sale of equipment for polymeric manufacture. In parallel last year I worked in an Industrial laboratory on the manufacture of extruded PVC products: plastic planks, siding, window structures and other products made from polymeric materials.

Despite my narrow specialization I always wanted to try myself in other fields of chemistry, that's why I decided to try myself on the BHP Billiton summer practise. Hydrometallurgy is one of the fields in which I am interested in, because of my general chemical education enabling me to work in this area.

In the next year and a half I would like to finish my Master degree and then maybe do my PhD in Australia (maybe with the Parker Centre) or in Europe. In future I would like to work in a big, actively developing company and this would be a good way to establish my future career.

