IAPS
International Assotiation of Physics Students

IAPS MAGAZINE

Vol. 2. No. 1. SPRING

Here is finally some really good news:

The Association of Physics Students (APS) of Russia has offered to arrange the ICPS'94. In the Central Office we agree on that this is the best possible solution to the conference problem, and have therefore given the committee in St. Petersburg green light. We are very much looking forward to meet you all in St. Petersburg.

ICPS'94.

Date:	**15.-21. August**
Place:	**St. Petersburg, Russia**
Organization	**fee: 110$.**

Participants: Undergraduate and postgraduate students , physics majors The amount of participants is not limited.

All participants will be accommodated in dormitories in Stary Petergof. Meal will be provided for all participants in a students Dining Hall. There will be organized a visit to laboratories in Physics Institute SPBU. According the possibilities the cultural program will be organized.

The deadline to send registration forms is April 30th 1994. The last day to send report topics for publishing in the bulletin is July 1st 1994. For connection with the ICPS'94 Organizing Committee it best to use FAX TELEX or E-Mail. The physical mail communication will be organized via the central office of IAPS.

The address of the Organizing Committee is:

APS (Association of Physics Students of Russia) Contact Person: Alexander Pavlov, Secretary of APS Russia International Headquarters of APS Russia Department of Physics SPbU Ulianovskaja 1, Stary Petergof 198904 Saint-Petersburg Russia

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CERN & ESRF Visit

The CERN visit has been extended with a visit to the coming great center of physics in Europe: European Synchroton Radiation Facility, ESRF, in France.

If you are interested in seeing how physics are done in the REAL WORLD, don't waste this opportunity to visit two of the most important world centers of physics.

WHEN & WHERE

Monday 18th of april to Thursday 21st of april 1994. Those who want to can of course stay longer in Geneva.

ESRF - Location address: Polygone Scientifique Louis Neel Avenue des Martyrs Grenoble France

You arrive on your own the 18th of april in the afternoon, at the youth hostel mentioned under accomodation. The visit begins Tuesday the 19th in the morning. Departure to Geneva at 6.11 pm the same day.

CERN in Geneva, Switzerland:

We arrive at Geneva in the evening Tuesday the 19th. The CERN visit begins Wednesday the 20th at 10 am. The program at CERN finishes Thursday 21st in the afternoon.

I would strongly recommend you also to stay Thursday night in Geneva.

HOW

By train: (Central European Time)

If you come from north: Go to Lyon. Departure Lyon monday 18th at 4.30 pm - arrival Grenoble at 5.58 pm

If you come from south: Departure Barcelona monday the 18th at 10.10 am - departure Valence at 4.27 pm - arrival Grenoble at 5.27 pm

If you come from France: Departure Paris monday the 18th at 2.37 pm - arrival Grenoble at 5.42

If you come from east: (Russia-Berlin-Zurich, Sofia-Wien-Zurich etc.) Departure Zurich monday the 18th at 12.03 pm - arrival Geneva at 3.02 pm -Departure Geneva at 4.oo pm - arrival Grenoble at 6.11 pm

ACCOMODATION

The accomodation in Grenoble (one night) will be at:

Auberge de Jeunesse d'Echirolles 10 rue du Gresivaudan Echirolles (Fax: +33 76 09 38 99)

The hostel is situated on the outskirts of Grenoble. There are two buses which stop near the hostel, the No.1

and No.8. The stop is "La Quinzaine". The rooms are of 6-8 people. Breakfast included in the price.

Acommodation in Geneva at: Oberge de Jeunes (youth hostel) Rue Rothscaild (phone: +41 227326260)

The youth hostel is placed nearby Geneva railway station, and there are good bus connections to CERN. The rooms are with 4-6 beds. Breakfast included in the price.

The reservations will be done by the IAPS Central Office.

PRICE

The visits at CERN and ESRF are free of charge.

Approximable prices:

Youth hostel, Grenoble	65 F (french franc)
Train ticket from Grenoble to Geneva	22 CHF
Youth hostel, Geneva	20 CHF a night
Dinner at CERN	10 CHF

1 CHF = 1.20 DM = 0.70 $

Know that you moreover have to pay for food the whole period and the travel expences to Grenoble and from Geneva.

WHO

Every physics student at an intitution of higher education is welcome to participate.

DEADLINE

Last day to assign to the visit is the 31st of march '94.

*** Nikolaj Berntsen and Nanna Nicolaisen are at the moment trying to raise money to pay some of the travel and housing expences, but we cannot promise anything yet. The sooner we know the number of participants the easier it is to get sponsoring. So please don't hesitate to answer.

International Association of Physics Students

Tale of the vicious Cosine

Tale of the vicious Cosine Once upon a time, beyond even the Great System of X-Y Coordinates, lived an old Triangle, who had three angles: Alfons, BeThomas and GamMartin. One day in an afternoon of a unitradiused autumn, the old Triangle sent for his angles and said:

-My dear sons! Soon I will transform myself to the other-worldly plane of projection. Try your fortune in the great Trigonometry!

So he gave them three logarithm baked in ash and started them off. The three angles strolled along they reached a cross-way. There they sat down below a huge fraction, made a fire from signs and apathetically made an interpolation. When they had rested each angle started on a different way. A little later GamMartin sat down to eat. Suddenly the vicious Cosine popped up front of him and asked for a logarithm baked in ash. But because the vicious Cosine didn't get it, he whipped out his sign and began to fight against GamMartin. Since the vicious Cosine wasn't able to regulate himself to Y, he became enraged and equated himself to zero. GamMartin went on and suddenly he saw a fairly-tale compound fraction. He went upstairs to the numerator, where he admired magnificent equations and shining unknowns. After he looked on the numerator, he went downstairs to the denominator, where he wandered among wonderful Sine-curves and brocade-functions. He even peeped behind the parentheses. But, Oh my God, what did he see ?! There was the old Tangent, bound and lying under a square root sign! When the old Tangent looked at GamMartin, he said:

-Look at me, boy! The vicious Cosine occupied my realm, bound me, put me into parentheneses and tucked me under the square root sign.

He had just said this when the cunning Secant, the nephew of the vicious Cosine sped in. But GamMartin didn't hesitate either. He whipped his geometrical mean out and charged. The cunning Secant fell to the ground and GamMartin bound his arms and legs and extracted a root from him. Then the old Tangent said:

-Because you unbound me, I give you all my realm and all my sides: Amanda, Beate and Cecilia.

So GamMartin answered:

-Your Majesty! I think that three sides would be too much for me. They would neutralize me soon. I would rather call for my brothers.

So he blew his whistle, and Alfons and BeThomas appeared immediately. Alfons chose Amanda, BeThomas chose Beata and GamMartin chose Cecilia. They stood facing each other. Raising to a power and bringing to a square were in progress during the next seven days and nights. Young equotations were happy in proportion to each other and a little after they produced the least common multiple. Perhaps now they are even searching the greatest common factor, if they haven't been simplified by each other.

Study of Physics in France and Denmark

The members of IAPS Copenhagen have asked me to write about my study experience in France and Denmark.

Let us start with the country I know best: France. I have enjoyed my studies in France (Paris), although it hasn't been "at no cost". Here is a short introduction for all those, who haven't got an idea about studies and university life in France.

After final school examination ("baccalaur!at") most of the young, well-educated Frenchmen (Frenchwomen), especially those of "b.c.b.g." type ("bon chic bon genre" !), try to enter one of the "Grandes Ecoles" via a competitive examination ("concours"). Am

This means that they suddenly need a tie for every day's life.

Centrale. These Grandes Ecoles, where mainly applied science and engineering are taught

, have indeed a very good budget, a lot of teachers (with respect to a given number of students) and a respectable research potential. They have also a big tradition; - the pride of the "grande nation" partly rests on the "Grandes Ecoles": Alfred Kastler,

!Quotation: B. Cagnac, Professeur (Universit! Paris VI)

Those young Frenchmen (Frenchwomen) who do not succeed in entering a "Grande Ecole" (for the German readers: die sog. "verkrachten Studenten"), normally land up in one of the "faculties". These latter institutions have a smaller budget and are normally ov

!Quotation: B. Cagnac, Professeur (Universit! Paris VI)

"La s!lection r!v]le le talent." (The selection reveals the talent; advertising of a private business school). This slogan is quite all right, but also very typical for the French way of thinking.

How does such a "concours" look like? The candidate is confronted with a lot of (quite difficult) calculation problems in mathematics and physics. The one, solving the highest percentage of the given problems, will be on top of the classification, and he

Quite the opposite with the education system in Denmark! In many cases the teacher follows closely a standard text-book. The students first read the chapter which will then be discussed in the lecture. They are therefore well prepared for the lectures (id

Instead of anonymous written examinations, as they are common in France, prevail oral examinations. At the end of a semester course the students get a series of topics, about one of them (decided by lots) they will have to talk during the examination.

Particularly characteristic for Danish students is their tendency to "get out", to leave their country. They are in this regard completely opposite to French students! "Vil du ud?" (Do you want to get out?) is written on the many bills posted on the notic

!Quotation: B. Cagnac, Professeur (Universit! Paris VI)

Indeed, a considerable part of the students (20 to 30%, personal estimate) spend a longer periode (at least half a year) at a foreign university (most of them in England, Sweden or Germany).

So far!!

as a preliminary conclusion, the Danish system seems to be preferable to the French one. However, this conclusion may be influenced by the fact that my detail knowledge on the French system is somewhat better than the one on the Danish system. I therefore

!Quotation: B. Cagnac, Professeur (Universit! Paris VI)

Walter Goetz

!Quotation: B. Cagnac, Professeur (Universit! Paris VI)

tradition;

- the pride of the "Grande Nupwith good, old textbooks, but with on exercises a standard textonespending on the drawn

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""Provided that the previous assumption is true, they are d for the lectures

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PHYSICS or/and ETHICS

" In the last century, scientists knew less than what was actually usedin practise. For example, the steam engine was invented before scientists really knew what thermodynamics was. In this century situation has changed:we know a lot more than what is really used in everyday life - and this is not simply a greater knowledge, but the kind of knowledge that has reacheda critical point: now we are able to destroy everything on our planet. Do you think that mankind is ready to "cope" with such a possibility?Do you think we are ready to handle the wide gap that has aroused between our scientific development and our social-economic development? Unfortunate-ly we know what happened when physicists discovered nuclear power - what willhappen when genetic surgery is fully developed? Are we only physicist livingin a lighthouse or social beeings as well? Do we, physicists have great res-ponsibility towards other people on Earth because of our knowledge? Do we have small responsibility? Do we have any responsibility at all? Shouldn'twe know a bit more about how our activity affects the life of the society?What is the role of a scientist in today's world, what is his responsibility if he wants to be in good conscience with other people and himself? We don't think that these questions can be answered by sitting besides ourdesks and reading a book about physics. These questions could only be answeredif we met students living in other countries and other cultures; we could talk,argue and understand each other - with our personal views becoming wider andwider every time. The younger we are - the easier we make friends and our worldneeds friendships to live in peace. " These words is written by one of the pioneers of IAPS, Patroklosz Budai. The excerpt is from his opening speach at the first international conference for physics students in 1986. The following year IAPS was officially formed. One of the main aims of IAPS are to promote truth and understanding between physics students throughout the world. Today the ideas and questions mentioned above still are just as important and relevant as in 1986. They are not easy to deal with, and there are no final answers ofcourse. It is however, as the physicists of the future, our obligation to take a stand and make a code of ethics for science. How far are we ready to go, and are we willing to move our limits for money? Today we can see and feel the unintended consequences of previous times projects. Especially in the area of nuclear power there has been horrifying examples. As Patroklosz we think a dialogue between students all over the world are of extreme importance. Therefore we have thought about arranging a physics ethicsconference for physics students this spring or maybe next autumn. The conference would be held in Copenhagen over a weekend and there would be invited speakers for lectures and introductions to discussions. The conference fee are planned to be 40 $ for western and 30 $ for eastern countries. The fee includes full accomodation - hopefully at a conference center just beside 'Kronborg' (The castle of Hamlet). We would like to get some respons from you. If this has any interest we will start fond-raiseing the 100.000 Dkr that is needed. Please give us a hint whether you would like to participate. The minimum amount of participants is 30. Please spread the word about the conference to your friends and colleguesat

The IAPS

The International Association of Physics Students, IAPS, has in its six years livetime created a comprehensive network of young physicists in Europe and USA, which may be predicted to get contructive and long-termed impacts on the international standard of the profession. I have seen the 1992-93 Annual Report, and it bear witness to an impressive professional activity level andindicates new initiatives coming. Danish physics students will in many ways profit by IAPS, and I can warmly recommend the association in connection with possible prospective fund applications for financial support.

Ove Nathan, Vice Chancellor
(Originally written in danish. Translated by the Central Office)

Maybe somebody finds useful following list ...

Maybe somebody finds useful following list of physics departments at the Faculty of Mathematics and Physics of Comenius University Bratislava, Slovakia and overview of their programs.

DEPARTMENT OF ASTRONOMY AND ASTROPHYSICS deals with solar physics and interplanetar matter. Shares the observatory ”odra - Piesky” with the department of geophysics.

DEPARTMENT OF GEOPHYSICS concentrates on exploring dynamical displays of the Earth magnetic field on the basis of magneto hydrodynamics of rotating liquids and on exploring physical processes in the Earth’s ionosphere and magnetosphere.

DEPARTMENT OF BIOPHYSICS AND CHEMICAL PHYSICS deals with biophysics of biological membranes, cooperative processes inmultimolecular systems and transport processes in complicated biological systems, in chemical physics deals with application of quantum-theoretical methods in chemistry and biology and with problems in chemical spectroscopy. Besides this it cooperates in application of biophysics in medicine, food industry and agriculture, nuclear energetics, robotics.

DEPARTMENT OF SOLID STATE PHYSICS deals with semiconductor physics, theory of the solid state and high-temperature superconductivity physic. In the semiconductor physics it concentrates on implantation of ions intoGaAs, epitax layers of the group A3B3, optical methods, theory of conductivity, technology of production and research the thin layers of amorfhydrogenized silicon a-Si:H and corresponding structures for solar elementsand xerography. The research in high-temperature superconductivity concentrates ontechnology of production of thin superconductive layers of YBa Cu O and other materials by magnetron dusting, investigating their parameters byconduction methods and theory of high-temperature superconductivity. In both branches methods of determination of the material structure are applied. The department cooperates with the practice in the area of ion implantation into metals, light-sensitive layers for xerography and driving experiments by usage of computers.

DEPARTMENT OF PLASMA PHYSICS concentrates on exploring the properties of electric discharges and corresponding elementary transport and chemical phenomena. At the presentee department works on 6 grant projects. The department has a good experience with cooperation with electronic industry, plasma welding and various applications of the crone discharge. The department cooperates with many evaluated teams abroad, such as Universite Paris-Sud, Orsay; Universita di Bari, Eindhoven University ofTechnology, Universitaet Innsbruck.

DEPARTMENT OF NUCLEAR PHYSICS is oriented on physics of atomic nuclei, elementary particles and low radioactivities. The section of neutron physics concentrates on applied nuclear physics. The department intensively cooperates with CERN Geneve, UTNE Dubna, G SI Darmstadt, MAAE Vienna.

DEPARTMENT OF METEOROLOGY AND CLIMATOLOGYis oriented on exploring the boundary area of the atmosphere, solvingproblems according to requests of the practice in the area of radiation, energy and water regime in Slovakia, analysis of the climatic conditions of some local areas, building and protecting the environment, especially from the point of air pollution. The department cooperates on the National Climate Program and the State Ecology Program.

DEPARTMENT OF OPTICS is oriented on laser physics, non-linear optical phenomena in liquids and anisotropic crystals and optical bistability.

DEPARTMENT OF RADIOPHYSICS concentrates on radiospectroscopic methods of studying materials (nuclear magnetic and electron paramagnetic resonance) and applications of the analogue and digital electronic devices in the physical practice. The department deals with technical applications of some magneto-mechanical phenomena.

DEPARTMENT OF THEORETICAL PHYSICS solves problems of the theory of gravity, theory of elementary particles, theory of the solid state, mathematical physics, theoretical mechanics, history of physics, methodology of physics and didactics of physics.

DEPARTMENT OF BASICS AND DIDACTICS OF PHYSICS educates future teachers of physics, does some research in the didactics and methodology of physics. End of the list. Next time some other kind of info (sights, culture, etc.) will follow.

Peter Hakel Bratislava IAPS President

European Mobility Scheme for Physics Students

The European Physical Society are convinced of the importance of student mobility in Europe, and has therefore made an 'exchange programme' called European Mobility Scheme, EMSPS. This programme offers places at universities in Europe and Russia. For students to obtain information about their possibilities there has been made a database. To connect the database in UNIX you write '**telnet 130.88.20.113**', and there after login at student with the password student1. The first thing you see is a whole bunch of warnings demanding you to disconnect immediately if you aren't an authorised user. But as you of course are a student with no bad intentions you just read the welcome-part. From here you will be guided around in the very user friendly database. We can only say: TRY IT! You can read about universities in 26 countries. There's detailed information about courses, availability of places, examination arrangements, mobility arrangements, general information about the university and much more. You can use the database not only if you want to study abroad, but also to get insight in the physics study at universities in other countries. IAPS has started a cooperation with the European Physical Society about having our network of Contact Persons included in the database. We will also ask the EMSPS contact persons (professors from about 130 universities) to help getting a student from their university involved in the IAPS network.

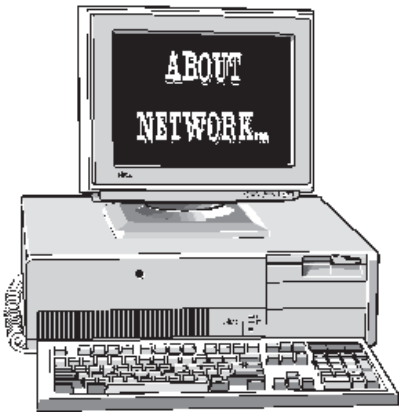
The Central Office.

Network of CP's

Paris, 14 February 1994

Dear Contact Person, many thanks for your interest in the IAPS Network of Contact Persons, and for your patience.

On behalf of the Network administration I want to offer my sincere apologies for the delays in contacting you. As those of you who were present at ICPS'93 in Bodrum may remember, we spent a great deal of effort last summer reorganising the structure of the Network with the intention of turning it



into an active, operational part of IAPS. It was our intention, as I announced at the last General Meeting, to send you the first official Network bulletin before the end of October.

Unfortunately the process of establishing the database was complicated by a serious lack of coordination between the various sites of the Net-work's organisation. As this was introducing unacceptable delays and was compromising the entire function of the Network, we have decided in the end to move all operations from Dublin to the IAPS Central Office in Copenhagen. The new Network Organisers are Klaus Jensen and Klaus Lindemann, two active members of the Danish IAPS with a lot of experience in database management. They will be delighted to receive any comments or suggestions you might offer on the Network's organisation.

I therefore ask you once again to excuse us for the delays, and I hope we may count on your participation in our ambitious attempt to spread information on foreign study to physics students around the world. Welcome!

With very best wishes,

Allon Percus co-founder, IAPS Network of Contact Persons

Dear (hopefully coming) Contact Person,

We are now in the final stages of preparing the database in Copenhagen for the new IAPS Network of Contact Persons.

The purpose of the IAPS Network is to spread informa-

tion as widely as possible about the opportunities for physics students to study abroad. The Network is coordinated by the International Association of Physics Students (IAPS) as a public service to physics students throughout the world. It is made up of Contact Persons - students at universities in many different countries - who have volunteered to inform fellow students about studying in their respective countries.

We are searching for new Contact Persons. Being a CP means that you agree to make yourself available, on an informal basis, to answer questions from students at other universities about physics study at your own university. It also means promoting the Network within your university and letting your fellow students know that they can get information about foreign study through the Network.

As soon as we have received your verification, we will send you the first official Network Bulletin. The Bulletin will appear regularly every few months and will always be accompanied by a call for confirmation of the data we have on you. The first Bulletin will include information on:

- how to make use of the Network - the membership and composition of the Network - our goals for the near and far future - other IAPS activities

We will also send you a poster which you may wish to use for publicising the Network within your department/university.

If you have any questions, suggestions, or comments about the operation of the Network, please do let us know. We are very interested in hearing from you. Sincerely,

The Network Coordinators.

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P.S. We would be particularly grateful if you could provide us an e-mail address where we can reach you. Using e-mail helps us all keep our costs down and makes things far more efficient. With an e-mail connection you and your fellow students will soon be able to access the Network database directly, without the delays caused by human intervention...

Dear Readers,

You are reading the IAPS MAGAZINE, which is the information magazine of International Association of Physics Students. The MAGAZINE was already printed last year so as to inform the physicist and students in Europe and all over the world. It isn't only published for physicist. We are waiting for information from everyone who know something about scholarships, summer schools and etc. If you would like to publish some article in the MAGAZINE please send it to the central office

IAPS@MEYER.FYS.KU.DK
or to the editor
NOKI@LUDENS.ELTE.HU.

We are planning to print one more magazine before the ICPS in May or in June. -So please write us as soon as you can. Our plans for the future: 2-4 MAGAZINES should be published in a year whith more information.

Thank's, the editor.

THE MAGAZINE
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