

VATLY NEWSLETTER

WORDS OF WISDOM

With the advent of the XXIst century, education and research in science need to evolve in order to comply with the changes that are ongoing all over the world. This is also true in our country, in spite of the outstanding and serious difficulties that need to be overcome: we are used to face this kind of problem... What matters is to remain vigilant, to make a clear analysis of this evolution in order to understand in depth its causes and its mechanism, to keep aiming at the right direction toward our integration into the new world. We should go fast, but we better go a bit slower than take a wrong direction.

Professor Hoang Tuy

Conference on "Continued renewal and development"

Da Nang, 28th -30th July, 2005

CONTENT

This fifth issue of the VATLY NEWSLETTER starts, as usual, with some NEWS FROM THE LABORATORY. An INTERVIEW OF PROFESSOR HOANG TUY by Diep follows. Professor Hoang Tuy, a mathematician of international renown, is a former Director of the Institute of Mathematics in Ha Noi. He is very active in improving the quality of University teaching in Viet Nam, he has an acute vision of the difficulties that need to be overcome, he advises the Government on matters of education and, last but not least, he is a good friend of VATLY. Thuan then tells us about A VISIT TO THE US IN THE WORLD YEAR OF PHYSICS that he made earlier this year. Thao tells us about the recent and successful INST SCHOOL ON NUCLEAR PHYSICS AND ASTROPHYSICS that had been organized by Dao Tien Khoa at the Institute and that brought together over thirty Vietnamese students from all over the country. Finally, we have collected a few photographs in an album at the end of this issue.

NEWS FROM THE LABORATORY

Under this heading we review briefly the progress of the work of the group and the main events in its life.

Dong has organized and led major upgrade operations on the roof of the laboratory. The whole group has been helping him with the installation. The new Photonis 9" photomultiplier tubes (see previous issue) have been tested in the lab using a

source and a scintillator and have been equipped with Auger electronics given to us by Tiina Suomijarvi and Joël Pouthas from the Institut de Physique Nucléaire in Orsay (France). It was Manoel Dialinas (see below) who took this electronics to us. It includes front end amplifiers on the last dynode and anode signals as well as a high voltage generator and other ancillary equipment.



Dong and Thao working on top of our Auger-like Cherenkov counter

A control box, to be located in the roof hut (where we used to have the telescope), has been designed and constructed by Dong for this purpose and is operating properly. Installation in the Cherenkov counter will take place as soon as the operations currently underway to improve its optical quality (water and walls) will be completed. In parallel with the work on the Auger counter, three new water tanks have been installed around it, at some

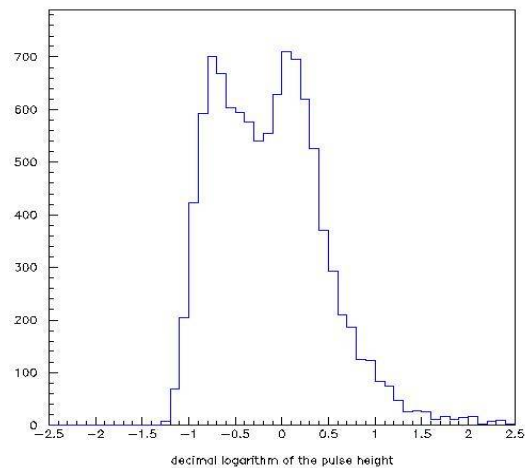
six meters distance. They are standard 3000 litres water tanks, widely used in Vietnam to store water on the roofs of private houses, modified to host two photomultiplier tubes. The idea is to measure various coincidence rates between neighbour tanks and study low energy extensive air showers. With these we are using 8" EMI tubes, of the same type as those we had earlier on the Auger counter. A same high voltage cable feeds both tubes of a same tank in order to simplify cabling and to save on high voltage power supplies. Here, again, Dong has designed and assembled the necessary electronics, including in particular new divider bases. After having cured minor infancy diseases, in particular shorts in capacitors, we seem now to have a working system. Thieu is currently putting together fast amplifiers (gain 10) for each of the six new signals: the ensemble will be operative before the end of September. It will provide material for two master theses, one for Dong, more hardware oriented, and one for Thao.

Dong and Thao have been awarded an Odon Vallet research fellowship, which has been given to them on the occasion of a ceremony in Van Mieu, the Temple of Literature, constructed in 1070 by King Ly Thanh Tôn and dedicated to Confucius; it was nearly one century before Bologna University, the oldest in Europe, was born.

Dong has been invited, from 18th to 23rd August, to attend the Fifth CNS International Summer School (CISS05) in RIKEN, the same as that which Nhung joined last year. The Centre of Nuclear Study (CNS) of the University of Tokyo organizes such a school each year and grants fellowships to foreign Asian students to attend the lectures. It was for Dong an opportunity to visit the installations in RIKEN and, particularly, the very modern radioactive beam facility.

Nhung has now completed the material for her master thesis and is putting it together. It is a collection of studies that she has been making of the Auger Cherenkov counter. They include a study of the response to muons, a search for muon decays and an analysis of the FADC traces in terms of muon and electron-photon peaks. The latter uses a pattern recognition program that she has developed and that is working properly. There are fundamental limitations in the aptitude of any program, even perfect, to identify peaks unambiguously, particularly when they are

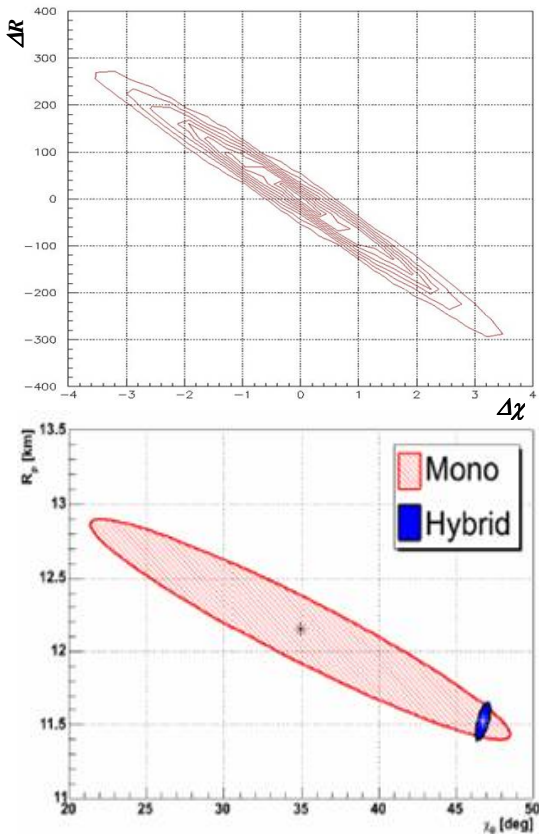
significantly smaller than a typical muon peak and/or occur in a densely populated region. Nhung has been quantifying these limitations by adding fake peaks to real traces and observing how well the program was able to recognize them. The figure below shows the distribution of peak pulse heights obtained from a sample of 1500 Auger events, with the muon peak sticking out clearly above the electron-photon background. But muon identification is only statistically possible, not on an event-to-event basis.



The pulse height distribution of peaks identified in FADC traces of real Auger events

Nhung will spend October and November in Paris with Murat Boratav and his group, hopefully learning many very useful things: when she will be back the group will benefit from her new knowledge, a good investment indeed! She is supported by the French CNRS/IN2P3 in the frame of a collaboration established between CNRS and VATLY. Together with Diep, she will spend the last few days of her stay abroad visiting CERN and the many VATLY friends who are working there.

Diep and Thao have completed their Monte Carlo study of the reconstruction of the shower axis in the fluorescence detector. Particular attention was paid to the systematic errors attached to the position of the shower in the shower-detector plane. It was rewarding to find that their result checks well with the Auger calculation presented to the recent ICRC (see figure). They are now working on the surface detector, with the aim to understand the systematic errors attached to the measurement of the lateral distribution function used in the determination of the shower energy.



The error ellipse characterizing the accuracy of the localization of the shower in the shower-detector plane. Diep's result (top) is shown together with Auger analysis (bottom)

They have written for this purpose a very simple shower development code that should be adequate to study the uncertainties caused in particular by shower fluctuations. These simulation studies of the sources of systematic errors in the surface and fluorescence detectors of Auger are the subject of Diep's master thesis, which he will soon start writing. Diep will spend the months of October and November in Catania with Antonio Insolia and his group and will also, like Nhung, learn many useful things. He is supported by the Asialink programme of the European Community and by Catania University.

Thieu has been successfully presenting his PhD thesis to the various relevant panels (a very complicated procedure in Viet Nam...). The subject of the thesis was the VATLY measurements of the atmospheric muon flux in Ha Noi with particular emphasis on the electronics of the experiment, to which Thieu had specially contributed.

Pierre completed in June the series of astrophysics introductory lectures he had been given to the honour class of second year physics

students. The examinations gave good results and a farewell party in his home was an opportunity to discuss the future with Pr Cong, the head of the department of physics. The main difficulty in progressing toward a sensible astrophysics lecture program was the system of classes which defines the structure of Vietnamese universities (see preceding issue): creating a class of astrophysicists would make no sense, it would force the students to leave the country after their four years of study since there is no astrophysics in Vietnam today. In order to overcome this obstacle, three hours have been freed each week, starting this month, in the time-table of all fourth year physics students to enable them to attend the lectures, given jointly to all classes. This is a big step forward toward having astrophysics in the University cursus. Some 40 fourth year students are attending the lectures.

Two new physics students, now entering into their fourth year, have joined VATLY for their graduation thesis. Kim Thi Phuong, who studies in the class of theoretical physics and is literally in love with astrophysics, will write her thesis on Sgr A*, the black hole located at the centre of our Milky Way, implying reading, understanding and digesting a number of recent articles on the subject. Nguyen Viet Phuong, a student in the nuclear physics class, will study the longitudinal profile of electro-magnetic showers using two different approaches: one by solving self-consistently the relevant integral equations, the other by writing a Monte-Carlo simulation of the shower development. Both of them have already started to come to the laboratory in their free time.

The INST school on nuclear physics and astrophysics, which had been organized by Dao Tien Khoa, took place in the Institute between August 26th and 31st. We report on it elsewhere in this issue. Diep was secretary and helped with the organization. It was for us an opportunity to meet two Auger physicists, Tiina Suomijarvi (Orsay, France) and Antonio Insolia (Catania, Italy), to introduce them to VATLY, to listen to their excellent and very instructive lectures and to discuss with them about Auger, VATLY and the relation between the two – in particular studies that VATLY could possibly undertake and that could be useful to Auger. As Tiina arrived in Ha Noi earlier, we had a chance to show her around and to spend time with her leisurely.

Manoel Dialinas visited the lab in early May. He is an engineer who was working at the Laboratoire de l'Accélérateur Linéaire in Orsay in the eighties and had designed and supervised the construction and installation of the UA2 central detector. Pierre and him had not met for over twenty years and enjoyed meeting again and remembering the happy days... Manoel is now working in Nantes on relativistic heavy ions (Alice at LHC) and is helping Viet Nam, where he spent several years in his young age, in its development. In particular, he is a member of the Comité pour la Coopération Scientifique et Technique avec le Viet Nam (CCSTVN) of which Henri van Regemorter was the founding father, and has been contributing to the creation of an IUT (Institut Universitaire de Technologie) at Hô Chi Minh City. VATLY has made a new friend and we shall have opportunities to meet again as he uses to visit Ha Noi once a year or so.

Tran Thanh Van and his wife Kim visited briefly Ha Noi in August and September, and the group had a chance to meet them at a dinner offered by Thuan in a restaurant in town known for his famous chef. It was for us an opportunity to tell them about the progress of the group and thank them for their help and support.

The CNRS-IN2P3 has been granting VATLY with an additional support of 3600 euros that, together with what is left on our account, will allow the group to survive until the end of 2006. We take this opportunity to express our deepest thanks to all those who have been active in generating this additional allocation, in particular Stavros Katsanevas from the IN2P3 in Paris.

VATLY was awarded a diploma of excellence by the Viet Nam Atomic Energy Commission.

A joint meeting (the so-called Osaka-Ha Noi forum) will take place at the end of September in the National University, bringing together scientists from Ha Noi and from Osaka (Japan). Nhung will present what VATLY has been doing recently. A copy of her talk is available on our web site. We already had a constructive contact with Professor Hiroshi Tsunemi from Osaka, who is working on X-ray space astronomy, at the time of the APPC9 Conference. One of his collaborators will be present at the forum and it will be for us a

good opportunity to strengthen these links. The same talk that Nhung will give there will be repeated in Vietnamese by Dong at a meeting of the Vietnamese Physics Society and by Thao at a meeting of the Atomic Energy Commission.

The 29th International Conference on Cosmic Ray Physics (ICRC2005) took place in Pune (India) in early August. The Auger Collaboration presented a rich set of results and we shall go through all of them systematically during our weekly lecture sessions as soon as Diep and Nhung are back from Europe. The news from Auger is very encouraging. Three fluorescence eyes are already in operation as are over half of the Cherenkov detectors. Planning for the North site is progressing rapidly. A first preliminary energy spectrum has been produced and shown, implying that Auger should be able to settle the controversial issue of the presence or absence of the GZK cut-off in a not too distant future. Searches for departures from homogeneity and point sources gave negative results but are not yet at a degree of sensitivity where positive results might reasonably be expected. The Auger papers can be found on the Auger web site <http://www.auger.org>.

Finally, we were pleased to see that our last paper submitted for publication in Communications in Physics (Vietnam) has now appeared: Atmospheric muons in Ha Noi, P.N. Diep et al., Com. Phys. Vietnam 15 (2005) 55.

AN INTERVIEW OF PROFESSOR HOANG TUY

Professor Hoang Tuy is a former director of the National Institute of Mathematics, a very successful research centre in Vietnam. He is a prestigious mathematician of international renown and has contributed a lot to the development of the Institute of Mathematics in particular and of Vietnamese mathematics in general. He is a member of the Government's advisory committee on matters of science and education. Having heard of his deep and thoughtful analysis of the weaknesses of the Vietnamese university system and of his very pertinent recommendations aiming at overcoming the present difficulties, we went to meet him at the Institute of Mathematics, which is at walking distance from our laboratory. This gave us an opportunity to listen to his views, to make him share our own experience... and to have VATLY make a new friend. He paid a visit to our

laboratory and was interested in reading our Newsletters. When we asked him whether he would accept to have one of us interview him and have the interview appear in the next issue of the Newsletter, he immediately, and very kindly, accepted. The interview that he gave to Diep is reproduced below. It gives us an opportunity to express here our deepest gratitude to him and to ensure him of our most respectful friendship.



Professor Hoang Tuy listening to Pierre's explanations on the roof of the lab when he visited us in March

VATLY: We know that you are playing a leading role in advising the Government on matters of education and science. Could you kindly tell us in a few words which are the main recommendations which you have made for what concerns University training, how they have been received and which are your hopes that they may be followed?

HOANG TUY: First, you should understand some facts about our university education system. A foreign scientist, who has been teaching in Vietnamese universities for several years, told me that "Vietnamese universities seem to be lacking the scientific atmosphere that pervades most other universities around the world". Our universities look indeed more as extensions of secondary schools: students are divided into fixed classes, they are not allowed to choose subjects from other classes, departments or faculties that they might like to learn about;

when the bell rings the teacher leaves the classroom, another one comes in, there is very little discussion, very little help given to the students; students have no freedom to organize their studies as they might like, they have to follow a fixed schedule; they just go to the university to listen to the lecturers and to take notes, they have essentially no time for consulting reference books in the library and they very rarely have a chance to attend a seminar. In short, the style and atmosphere of university training differs deeply from what it is in most, at least in the better, universities around the world. This is probably why there is not a single Vietnamese university in the regional (South East Asia) list of the top 60's. The problem is that this situation has now been lasting for decades. It has been like that for such a long time that many people consider it normal and do not even imagine that it might change. Today, in particular, several persons holding important responsibilities in the university system still think that an education of high quality is possible without research activities.

Among the bad effects of the present university system, for what concerns sciences, we may quote a few: the way in which master and PhD students are trained; the appraisal of the candidates postulating for professor and assistant professor positions; the assessment, selection, monitoring and planning of research projects. For now many years, the administration of science and education has been using strange criteria to assess the value of scientific projects; to say the truth there exists no well established criterion at all. Anything may be considered a valuable scientific project as, for example, numbering houses in the streets of a city. It is not rare that a PhD thesis that has been carelessly copied from another former thesis is more highly appreciated than many serious projects which have generated publications in international refereed journals. A particularly strange feature of the present system is that the program of PhD training includes, in any field of science, two compulsory subjects, one on the "methodology of scientific research" and the other on political issues. The contents of these two subjects have remained essentially unchanged for the last 30 to 40 years. The way in which they are taught is particularly queer: for example, "methodology of scientific research" is taught by people who have never done any research.

In such a situation it would appear essential to work out objective criteria in order to assess the

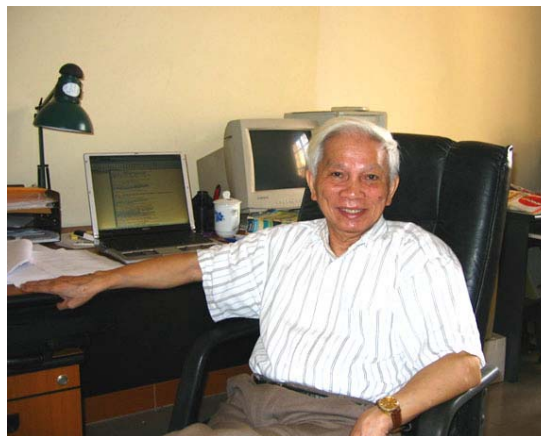
scientific projects and to appraise the researchers and the lecturers.

While it is clear that the present system needs to be improved, the question is how to proceed? For Vietnam to fully integrate into the world it needs universities of a higher and more up-to-date level. Such a modernization implies the preparation of a global reformation plan covering the whole education system, including university training. Meanwhile some measures need to be implemented urgently: a new management style is necessary to correct the many bad effects of the present one and new conditions must be progressively established in order to make it possible to modernize the system according to the plan. In our written proposal to the government, we have mentioned a number of priorities: reforming the system of examinations in the university; setting up adequate training programs for Master and PhD students; improving the system of selection and appointment of professors and assistant professors; making better use of our pool of university lecturers; training secondary school teachers. In parallel, we proposed to create at least one modern university of world class standard that would serve as a model and basis for reforming all Vietnamese universities and bringing them to a level such that they could compete with the more advanced universities in the region.

Recently, our attention was brought to a question that has come up and has become of actuality: the important problem of the policy to be adopted in the development of private universities. In my mind, the real issue is whether, in the present Vietnamese context, education can be considered as a kind of goods which can be freely traded in the market.

I am not against private universities as a matter of principle but I don't see any good reason for the government to need a policy in order to support, and most probably favour, such a business of making profit with education. Nor do I believe that developing profit-making private universities could be a good solution for improving university training in the country. On the contrary, if we were not careful, such actions might drag the present system into a chaotic state that would be difficult to control and would endanger the whole of the university education system. In my opinion we should concentrate on developing one or a few private non-profit-making universities supported by the government, taking it as granted that

education is the responsibility of the nation and of its leaders. To this aim the government must collect resources of capital existing in the country in order to support both the running and investment budgets of such universities; profit-making universities should be treated as any other business enterprise and, a fortiori, should not be given any preferential treatment. On the contrary, they should have to pay taxes on whatever profit they might make.



Professor Hoang Tuy in his office

The budget of a non-profit-making university could receive contributions from individuals (in particular from the private business and industry) under various forms: donations, low interest loans (compared to typical bank rates), etc... but, at variance with profit-making private universities, the benefits obtained by non-profit-making private universities should be used exclusively for the improvement and development of the university or to reimburse loans incurred for the acquisition of the initial capital rather than being redistributed among the personnel of the university. What really matters is that non-profit-making private universities be able to have full control over every activity of the university. In particular, they should have the right to decide on the content of the training program, on the methods of education, on the selection of students being accepted in the university, on the criteria for graduation, and of course on financial and personnel matters, including salary policy and dealing with collaborations with business, industry and other organizations both inside and outside the country. With such a high autonomy a non-profit-making private university will have a chance to gain experience in management and organization as well as in the development of suitable training programs: it could take initiatives that would be

extremely difficult to implement in existing universities because of their enormous inertia. For example, it would not be compelled to teach clearly useless matters that add up today to as much as 20% of the teaching time. Lectures should not be given to rigidly defined classes but to all students who have decided to include the subject in their academic cursus. An accounting using credit points, as is in use in most other countries around the world, will do the job.

If we want to modernize our universities and develop science, it is necessary to send a number of young talents abroad. These people will be trained in developed countries and in the best international science centres. In recent years, the number of students (including secondary schools) going abroad to study has been increasing (it now exceeds 40,000 people). However, this has generated a disastrous brain drain: those who are the most successful are offered attractive jobs abroad, both financially and in terms of independence and responsibility, and most of them do not return to the country. Under such conditions how could science, research and education, develop in Vietnam? In order to stop such a brain-drain we must first recognize our failure to give our young talents sufficient motivation and loyalty to the country. The main reason is the absence of science centres of high enough a level, where they could do research in a good intellectual environment and with sufficient resources. In the present situation, and under the present working conditions in science education and research, their coming back could not significantly help the development of Vietnamese science, to some extent it would be a waste of their talents. Unfortunately, upgrading the existing universities, including the National University, to an international level would have to overcome such an inertia that it would take for ever. The competition in the region is very high: we cannot afford to wait so long.

The development of universities is closely linked to the development of science. In order to do jointly research and teaching we have proposed to create a new university based on two research institutes, a Centre of Natural Sciences and Technology and a Centre of Social Sciences and Humanities, which, after a few years, should be like a modern western university. This proposal has been accepted and we hope that it will become a reality in the near future. However, it will have to

overcome a lot of difficulties having to do with mentalities and with organizational matters: we have seen in the past many good ideas that had been accepted higher up, fail badly once incompetent bodies had been entrusted with their realization.

In our mind, this university, possibly together with other similar universities, would act as a pilot to guide the general reformation of our university system. At the same time, it would be the natural channel through which we could establish exchanges with science centres around the world. It should be given enough favourable conditions, both material and in terms of intellectual environment, for talents to develop. Particular attention should be given to attract young Vietnamese scientists doing research overseas, including those who had been trained in Vietnam and went abroad later on, as well as to give sufficient motivation to our best young talents to stay at home with the aim of building excellence in Vietnamese higher education, research and technology. The general idea seems to be accepted by our government and it has been discussed on the occasion of the recent visit of our Prime Minister to the United States. If it makes its way through, it will be a real breakthrough in the whole system and would give a serious kick to our universities toward a new era of modern research and education in science.

At first, not many people were interested in these questions. Things are changing now, more people feel concerned. I am not pessimistic but I am not too optimistic either because I know too well how many difficulties need to be overcome.

VATLY: A major obstacle to the development of Vietnamese universities and of Vietnamese fundamental research is the abnormally low level of wages. Do you think that this is the main difficulty?

HOANG TUY: Yes, it is. We discussed this matter at length, underlining the need for a drastic change in our policy, enabling teachers and researchers to live on their own salary without having to rely on a second job. Only in this way can they spend their time and effort on research, on updating their knowledge, on improving the quality of their teaching. Only in this way can we build sufficient competence, morality and expertise in the staff of lecturers and researchers. Only in this way can they take up the challenge of developing

their talents to a level that will enable them to respond efficiently to the higher and higher demands of the imminent future.

The main weakness and the most negative factor in Vietnamese education and science, from kindergarten to university (including master and PhD training), is that teachers and researchers receive a salary that covers only one quarter of their needs, taking in due account the cost of living in the country and the standard of living that fits their position and role in the society. The remaining three quarters have to be found elsewhere. And of course they usually are. This means that it is not the money that is lacking but the way in which it is handled. We often hear “everybody is complaining about low salaries, but they are still properly living” being used as an argument to preserve the present situation. This kind of management is so irresponsible that many suspect that the only reason for its being preserved is the need to hide corruption. Having had such an insane salary policy for decades, many bad habits have developed, some officers have become deceitful. Stopping such bad practice, that has been so detrimental to education and science over so many years, will not be easy when switching to a decent salary policy. It will require a lot of vigilance. But we have no choice: we must restore a decent salary policy as a prerequisite to reviving our education and research system in science and technology. As long as the state employees will have to find by themselves three quarters of what they need to live, corruption and squandering will remain major problems. Leaving teachers and researchers “save themselves” will never be a wise policy.

VATLY: To the extent that you think that some changes have to be made, do you find enough support among the university professors? among the members of the government? among the students? Do you think that we, master and PhD students, could do something to help you in your effort?

HOANG TUY: By following the news in the newspapers and on television, we can see how different people may have widely different views on such questions. For example, a former minister, Tran Hong Quan, supports the creation of as many profit-making private universities as possible and to privatize existing universities. As a matter of fact, he got some support from the government

along this line. Inversely, another former minister, Pham Minh Ha, says that profit-making private universities should be forbidden because university education is not a market. For what concerns professors and students it is difficult to know how they feel because they have become so used to passivity.

For what concerns you, master and PhD students who are being trained in our education system, you should think about these questions, ask what is good and what needs to be improved; and once you have identified something that needs to be improved, you should think about how to improve it. In particular, from contacts with colleagues and friends from other countries, you can assess the quality of your knowledge and skills in comparison with theirs; you can ask whether the training which you have received taught you how to think and study independently, whether it gave you the opportunity to develop your passion, your interest and your creativeness, and other such questions.

VATLY: Astrophysics, our field, is not officially being taught in Vietnam. At a time when this field of physics is developing at a spectacular rate, is it not an unacceptable anomaly of our system of higher education? How do you think that this anomaly could be overcome?

HOANG TUY: Of course, astrophysics must be taught at university level. It is even useful to teach some basics of astrophysics and astronomy in secondary school (as is the case in many other countries). Fifty to sixty years ago, we started teaching some astrophysics, but we stopped thereafter. Now we have to take it up again. We should start by teaching astrophysics at the pedagogic university to introduce it at secondary school level. Meanwhile, the National University should initiate some teaching and create an astrophysics department with a long-term plan for its development. Unfortunately, I am not sufficiently familiar with the field to be in a position to give you more concrete ideas.

VATLY: Thank you very much, Professor, for having accepted to give this very informative and thoughtful interview.

**A VISIT TO THE US IN THE WORLD YEAR
OF PHYSICS**

Dr Vo Van Thuan, Head of our Institute, paid a visit to various US laboratories early this year together with a representative of the Ministry of Science and Technology that supports our research. He reports below.

From 13th to 20th January, under the sponsorship of the Ministry of Science and Technology of Vietnam, Tran Cong Due (MOST) and I paid a short visit to a few physics laboratories in the United States.

First was the Department of Astronomy of the University of Chicago, where we were hosted by its Head, Pr. Angela Olinto. Our aim was to learn the last news about the current status of the Pierre Auger project in order to report to MOST, the main sponsor of the Vietnam Auger research activity. We had a chance to meet Pr. Jim Cronin who spent an afternoon introducing us to the most recent achievements of the Auger Observatory, an international endeavour which he, together with Pr. Alan Watson, had launched ten years ago. He is now working in Angela's Department with an international group of young postdocs and PhD students. He gave us an overview of the present situation and his younger colleagues followed on with detailed reports on their own research work. We were particularly interested in hearing about the evidence for the high level of reliability achieved in the detection and reconstruction of very high energy showers, about the unique assets implied by the availability of a hybrid detector and about some subtle questions of statistical significance at the high energy end of the spectrum where the Japanese AGASA experiment seems to observe events beyond the GZK cut-off. Jim underlined the importance not to reach too hasty a conclusion on this delicate point. The Auger presentation at the 2005 ICRC will show clearly the advantages of having a hybrid detector and will demonstrate the good performance of Auger in this domain. However, for the HiRes-AGASA controversy to be settled, it will take many more events than currently available.

In the discussion that followed in his office, Jim encouraged us to take good care of the young generation of high energy physicists being trained in Vietnam. There may be very few of them for the time being, but their being familiar with the most advanced frontiers of particle physics and

astrophysics should strongly benefit a rapidly developing country such as Vietnam, not only from a purely intellectual and cultural point of view, but also, concretely, in its technological development. Both Jim and Angela concluded by expressing their strong support for the Vietnamese Auger team to consolidate its participation in the Auger project and firmly establish its collaboration on the long-term.

Listening to Jim, a tireless veteran of modern physics with a great vision into the future of science – and a great teacher for many generations to come – was for me and for my MOST colleague a most memorable experience.

Another very unique experience was our short visit to Fermilab that took place during the weekend. More than 30 years ago, I remember having had a physics exercise that consisted in the study of some bubble chamber pictures taken at Batavia; they inspired my first love for high energy physics... and only in January 2005, was I able to step on the trails of this famous site. Nicolas, a member of Olinto's group, was supposed to drive us there, but his car got stuck; this gave us a unique opportunity to visit Angela in her house downtown Chicago... and to borrow her car. While listening to her, I was admiring her enthusiasm and I was thinking how fortunate the Chicago physicists were to have her as a leader, side by side with Jim.

In Fermilab, we first visited a test facility that was run by Paul Mantsch and his team. Aaron Chou, a member of the group, explained us how they test the quality of the performance of the water Cherenkov counters using scintillators, a technique which reminded me of that we do in Ha Noi. That day, the more senior members of the group, in particular Paul Mantsch and Carlos Hojvat, had gone to Washington D.C. to fight for the budget and we could not meet them. However, I had had a chance to meet them earlier, either in Malargue or on the occasion of conferences hosted by Jean Tran Thanh Van in France. We then visited CDF, one of the main detectors of the famous Tevatron collider, which is still today keeping the record of the highest beam energy. There are a few Vietnamese graduate students working on D0, thanks to the effort of my colleagues from Hô Chi Minh City to join this collaboration.

After three days spent in Chicago, we boarded a flight to Washington D.C. From there we went to University of Virginia where Pham Quang

Hung, a Vietnamese professor in high energy physics, had kindly invited us.

In between the two visits, I stopped by the American Physical Society (APS) office in Maryland. Last year, I had met her president, Helen Quinn, in Hanoi on the occasion of the 5th Rencontres du Vietnam, an International Conference on High Energy Physics and Astrophysics. This time, a new president had been elected and Helen Quinn, from SLAC, her home Institution, called her former assistant for international affairs, Ms. Amy Flatten, and asked her to receive us. During this short visit, I did my best to brief her and her APS colleagues on the status of particle physics in Vietnam. We had a chance to talk about our cooperation in the celebration of the World Year of Physics and I promised to bring up the case to our Vietnamese Physical Society (VPS). Two weeks later I told the VPS committee in Hanoi about the wish of the APS for a coordinated effort to celebrate the World Year of Physics and we are presently doing something in this direction. Soon after having returned to Hanoi, I received from the ICTP library in Trieste, on behalf of the APS and of her former president, a collection of CD-ROM's containing APS journals published between 1997 and 2003. This is a wonderful gift for all of us here and I should like to take this opportunity to thank again the APS and Helen Quinn in the name of my Vietnamese colleagues.

Before meeting Hung in Virginia I had met him a first time in Blois, six years ago, and again in Hanoi last year. Hung married an Italian lady, also a professor of physics. I had been told that Italian women are famous for taking good care of their family, a bit like Asian women are: Hung's wife is a living proof of the truth of this statement. She is as busy as her husband is at the University, yet she manages to take such a good care of her family: men should bow before these women scientists. Hung discussed with me the possibility for Vietnamese students to study in University of Virginia and do research in physics. He introduced me to Pr. Gallagher, the dean of the physics department, and to a group of particle physicists who are preparing for a TeV experiment on B physics. It was very interesting to learn about the structure and activity of the departments in this University.

It was also a pleasure for me to meet again Trinh Xuan Thuan, another Vietnamese professor working at the University of Virginia. He had come

occasionally to Hanoi where he had given lectures to students: the young Vietnamese students had very much enjoyed his public seminars on astrophysics. Thuan is dedicating all his time to research and teaching. We discussed not only physics, but also questions like the development of physics in Vietnam, and we found that we were sharing many views on these subjects. In particular, we both think that all Vietnamese, whatever their ideas about politics and society may be, should join effort in making their home country prosperous in these times of rapid development. It so happens that we have the same first name, *Thuan*, which, in Vietnamese, conveys the ideas of *agreement*, *harmony*, *peace*. May be is it the reason for the similarity of our views... On my suggestion, Trinh Xuan Thuan agreed to cooperate with us in helping the Vietnamese universities to give their students a high quality teaching in modern astrophysics. The presence in Ha Noi of VATLY, a cosmic ray physics laboratory associated with Auger, is an obvious incentive.

We could not do research in only one week, it is much too short! But it had been an important and useful experience for us to understand how large research projects are handled in the US and how physics is being taught at university level. It was also very instructive and encouraging to meet colleagues who are always ready and eager to help the young physicists in Vietnam. It is a support which we appreciate and acknowledge very much.

THE INST SCHOOL OF NUCLEAR PHYSICS AND ASTROPHYSICS

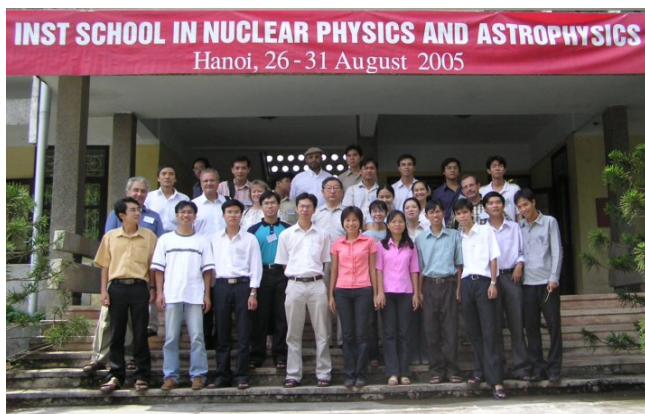
Thao reports below about the recent INST School of nuclear physics and astrophysics.

On the morning of August 26th, the INST school of nuclear physics and astrophysics started in the INST conference room, sponsored by the Asialink European program and by INST, our institute. Its aim was to update the knowledge of young Vietnamese scientists in these two fields. For us, in VATLY, it has also been an invaluable opportunity to learn about the latest news and results of the Auger Collaboration.

The school was attended by 30 or so students coming from all over the country, many from the South, some of them without having even received any financial support. Such a large attendance was a rewarding surprise to the

organizers, in particular to Dao Tien Khoa, the director of the school, who had been the main actor in bringing it to life.

The school lasted only five days, but it gave the students a chance to have close contact with renowned professors and to share with each other their experience and their views. The lectures were of a high level and richly documented, the lecturers communicated their enthusiasm to us. The time table was very dense: we were tired but happy. There was no day off for sightseeing. However, we were lucky to have the school coincide with the 60th anniversary of Vietnam's independence: on this occasion there were many festive events and a very cheerful atmosphere downtown. As usual students were quite shy and did not dare to ask many questions: they could understand the lecturers and read the slides on the screen but their speaking skill was limited. For the next school, copies of the lecture notes should be distributed in advance.



Students and lecturers in front of the INST entrance

There were nine lecturers who attended the school, all from renowned universities and research centres. Among them, two were from Auger, Tiina Suomijarvi (IPN Orsay) and Antonio Insolia (Universita di Catania).

Tiina arrived one week in advance and we could this way spend time with her. She could learn about what we are doing, discuss with us about the use of the equipment that we had received from her, suggest some measurements and studies that we could undertake in VATLY and that would be of interest to Auger. She could also tell us in detail about the progress in Auger and about the latest results. She took the initiative of

including in her lectures presentations given by each of the four VATLY students on matters related to Auger equipment and illustrating its use. We appreciated it very much and will never forget it. It was the first visit she paid to Vietnam and we did our best to make her feel comfortable, as she would be at home. We like her so much, and we hope that she will come back some time soon. She and Antonio found the time to take a day off to Halong Bay. They had the good fortune to have a beautiful weather that day and to really enjoy the trip.



Tiina, Khoa and Diep during a pause

Antonio had missed his flight and arrived just in time for his first lecture, but without his luggage that the airline company had lost somewhere... Yet he had time to go around in the old town and do some shopping. We were very impressed by his calm enthusiasm and his interest in what we were doing.

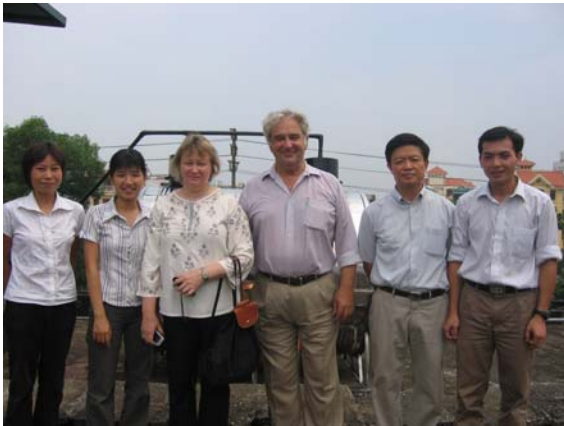
In addition to the real students attending the lectures, there were two less young students who did not miss a single one and asked many questions, sometimes so many that there was no time for a pause: Shalom and Pierre. They discussed very much with students and impressed them by their tireless curiosity, their passion for science and their smiling faces.

Nguyen Van Giai (Orsay) gave lectures on nuclear structure. As we could ask him some detailed explanations in Vietnamese, it helped us in understanding his lectures. Two lecturers came from Japan. Professor Kubono gave a very comprehensive set of lectures on nuclear astrophysics and Professor Horiuchi told us about molecular and cluster structures in nuclei. Both were extremely interesting. We heard more on nuclear structure from Jie Meng (Beijing) on modern Bogoliubov-Hartree-Fock calculations and

from Peter Egelhof (GSI Darmstadt) on radioactive ion physics – an omnipresent topic in modern nuclear physics – and future plans in Europe. The lectures shed light on the link between nuclear physics and astrophysics when it comes to understand nucleosynthesis, whether primordial or stellar, and the mechanisms involved in the life and death of stars. Finally, the audience was told about what we are doing in VATLY and a visit of our facilities was organized.

Time went so fast! The school is now over but we can still hear its echo. We had a chance to learn a lot and make new friends: we hope that the school will now be organized on a yearly basis in order to help Vietnamese students in both fields to learn together about their progress and development. We are very grateful to Khoa for his effort in taking the initiative of bringing the school to life and making it a success.

PHOTO ALBUM



Visit to the roof of the laboratory. Left to right: Thao, Nhung, Tiina, Pierre, Thuan and Diep



Left to right: Professors Horiuchi, Jie Meng and Tiina at the school diner



Dong (left) explaining the electronics and data acquisition system of VATLY to some school students



Antonio lecturing on Auger



Four VATLY students (left to right: Nhung, Diep, Thao and Dong) helping Tiina (right) giving one of her lectures at the INST school



Some of the INST school students (Thao and Nhung are 4th and 5th from the left)



Tiina and Antonio discussing during a pause



Diep and Tiina in the yard of the Trân Quoc Pagoda on the West Lake

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