VATLY NEWSLETTER

"Many universities lack well-qualified teachers to ensure the quality of higher education: only 35% hold a Master degree and 14% a PhD degree, causing them to recruit 51% of their teachers with only a Bachelor degree and threatening the quality of education. Our strategic plan of human resource development toward 2020 will focus on improving the quality of teachers so that 58'000 teachers with Master degrees and 29'000 with Ph.D degrees can be trained to meet the demand of universities and colleges nationwide."

Pham Vu Luan

Minister for Education and Training, June 2012



On July 4th, Fabiola Gianotti for ATLAS and Joe Incandela for CMS reported at CERN the discovery of a particle having a mass of ~126 GeV and displaying features expected from a Higgs boson. The whole VATLY team watched their presentations on line with much emotion. What a joy to see thirty years of hard work finally rewarded! With our congratulations, we send them our wishes for many new successes in the wake of this discovery.

CONTENT

This sixteenth issue of the VATLY NEWSLETTER opens with the traditional NEWS FROM THE LABORATORY. Diep reports briefly on NEWS FROM THE VIETNAM ASTROPHYSICS GROUP and the launching of a small satellite. Hiep and Dong report on their stays abroad, A MEMORABLE SCHOOL IN CASTEL GANDOLFO at the Summer School of the Vatican's Observatory and THREE WEEKS IN MALARGÜE, taking shifts at the Pierre Auger Observatory. Diep and Nhung have interviewed the new Chair of Vinatom, of which our institute is part, INTERVIEW OF DR TRAN CHI THANH. Following tradition, we close the issue with a PHOTO ALBUM.

NEWS FROM THE LABORATORY

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

After Têt, and the many conferences that were attended before Têt, the team went back to work.

Hiep, after having completed the runningin of our small radio telescope (SRT), wrote down the main results in a paper submitted to Communications in Physics (Vietnam) and presented by Tuan Anh at the 7th Siam Physics Congress, a major annual gathering of the Thai Physics Society that brings together scientists from all over Asia and took place in May in Ayutthaya, a former capital of ancient Thailand. Hiep then concentrated on collecting SRT spectra along the disk of the Milky Way, of which three quarters are visible from Hanoi, in steps of 5° of galactic longitude. This rich set of data, which gives clear evidence for differential rotation of the Galaxy around its centre with respect to the Sun and for the clumping of atomic hydrogen in separated clouds, has now been reduced to a map of atomic hydrogen in the Milky Way disk. Having nearly completed the redaction of his master thesis, Hiep spent the month of June in Castel Gandolfo, which hosts the Observatory of the Vatican: he had obtained a fellowship to attend their yearly Summer school. He reports on it below.



The map of atomic hydrogen measured by Hiep is shown in black and red and compared with the bar and arm structure of stars in the Milky Way, shown in blue.

Hoai completed the redaction of an article that summarizes her (and Diep's) work on the simulation of the development of extensive air showers and which has now been accepted for publication in Astroparticle Physics. She then started a new life as a radio astronomer. In April, she was awarded a prestigious fellowship by the French Embassy, which allows her to start a PhD thesis under joint supervision between Hanoi and the Paris Observatory. Her French supervisor is Pr Thibaut Lebertre, from the Laboratoire d'Etudes de la du Ravonnement et Matière en Astrophysique (LERMA), who kindly accepted to take her with him. She started learning about Red Giants and their circumstellar envelopes, the subject of her PhD work, in order to feel at home when she will be in Paris from September to December. Meanwhile, she wrote a toy simulation of the mechanism of imaging using an interferometer array, which proved very useful to the whole team, and studied the gravitational lensing of extended sources, in relation with Tuan Anh's work on the host galaxy of quasar RXJ0911. This latter work turned out to be very interesting and will soon be submitted for publication in the Journal of Astronomy and Astrophysics.



Hoai's model of Tuan Anh's quasar: The white rhomboid shape is the caustic, centred on the main lens; the red disk is the source, the host galaxy of the quasar, here shown with a radius of 1 kpc. Four images, one on the right and three on the left, merged in an arc along the Einstein ring, are shown in colour code.

Tuan Anh returned from France after Christmas and started writing down what he had been doing during his stay in Toulouse, under the direction of Frederic Boone. At the same time as he was putting some order in his ideas, he had to teach Nhung, Pierre, Hoai and Hiep about what he had learned and the intricacies of mapping the sky using interferometer arrays. This means for Frederic the load of not only one PhD student but effectively three to five, a load which he gracefully endorses. The subject of Tuan Anh's study is a gravitationally lensed quasar, red shifted to $z \sim 2.8$, meaning that it is observed as it was 11.3 Gyr ago. The data were collected by the Plateau de Bure Interferometer in the French Alps. The quasar is observed at the frequency of a rotation line of the CO molecule, CO(7-6), a probe of molecular hydrogen in the host galaxy.

Moreover, the line stands above a continuum that is mostly produced by the black body emission of the dust in the galaxy, heated up by the central AGN and, more importantly, by the frequent starbursts that occur in such early galaxies where the star formation rate is typically two orders of magnitude above that in the Milky Way. The hope is to measure the sizes of the line and continuum sources, meaning of the molecular gas and dust emitting regions. Preliminary estimates of about 1 kpc and respectively 0.5 kpc are at the limit of the angular resolution of Plateau de Bure and we are currently preparing a proposal to obtain observation time on the ESO Atacama Large Millimeter/ submillimeter Array (ALMA) in Chile when it will be completed.

In September, both Tuan Anh and Hoai will leave for France where they will spend four months in their host laboratories, Tuan Anh in Toulouse and Hoai in Paris. On this occasion, they will attend the courses of the 8th IRAM millimetrer interferometry school that will be held in Grenoble from October 15th to 19th.



The Plateau de Bure Interferometer in the French Alps

Thao completed the analysis of the time autocorrelation spectra that she had collected on the VATLY Cherenkov detector and was able to describe them accurately with a model including muon decay and capture. The probability of detecting two muons from a same shower has been measured and will be used to pin down the distribution function. lateral The electron detection efficiency has been accurately measured as a function of threshold and is the basis for the study of the charge spectra that were collected at the same time, the analysis of which Thao is now undertaking.

Diep, Dong and Nhung are now playing a broader role in the life of the team, being more involved in tasks of a general interest, including administrative tasks related to the life of the Institute or to the obtainment of financial support, and, more importantly, in the supervision of their younger colleagues. This is particularly true of Nhung who spends much of her time advising and helping Hoai, Tuan Anh and Hiep. She also

recently completed the analysis of PAO data related to the "raining" syndrome, a dysfunction of the bases of the PMTs of the PAO ground array, which although being essentially harmless to the quality of the data has inspired many studies of which Nhung has become an expert. She produced a GAP note summarising her results. Diep, together with Dong, has analysed data from the AMIGA array, a small infill array four times as dense as the standard array, allowing for lowering the PAO trigger efficiency down to $\sim 10^{17.5}$ eV and for dedicated muon detection. Diep and Dong are also spending time on completing the construction of the cloud chamber that had been started some time ago but had been left unfinished. Dong spent three weeks in Malargüe to take shifts with the Fluorescence Detector and to help with the maintenance of the ground array. He reports on it below.

The creation of a master "Space and Applications" at USTH is progressing fast. We recall that USTH is a Vietnamese university that is just starting to operate with French support and has ambitions of excellence. Indeed, and particularly in the case of "Space and Applications", a strong team of enthusiastic French scientists is dedicating time and effort to the project. We agreed that VATLY would host some of the lab work associated with this master, using material brought to Hanoi by Alain Maestrini and, possibly, our SRT. We also offered the help of Nhung and Diep to give, or assist with, lectures. What exactly will be the identity of this university in the Vietnamese academic context, and of this master in particular, is still not completely clarified; in particular, it is difficult to guess what will be the response to such kind of training among both students and potential teachers. Meanwhile, this was the occasion for us to welcome Pierre Encrenaz and Yannich Giraud-Héraud in March and Pierre Lesaffre and Guillaume Patanchon in May.

On April 12th, Hiep, Tuan Anh, Nhung and Diep attended the celebration of the 51st anniversary of the first human space flight by the Young Amateur Astronomy Club. The Club had been created informally in Hanoi in 2008 by a group of young astronomy lovers with the purpose of communicating to the youth their passion for science in general and for astronomy in particular. Since then, the group has been very active, maintaining a website providing general information about astronomy and including a forum where the club members can discuss and exchange knowledge. The group provides assistance to the younger members to construct small telescopes and regularly organizes activities open to the public, such as sky observations and competitions on astronomy.



Presentation on Venus transit at the Young Amateur Astronomy Club

At the ceremony, the Club announced officially its existence under the sponsorship of the Youth Union of Hanoi. They total some 700 members, mostly from high schools and universities in Hanoi. A representative of the club presented its upcoming activities and launched a water rocket competition for Hanoi high school children. Then, they had a discussion on the role of astronomy in society and, finally, a presentation of the historical flight of Yuri Gagarin into space, 51 years ago.



The Board of trustees of the Astronomy Club

On the occasion of the end of year meeting of our Institute, just before Têt, our director reported to the staff on the achievements of the year. Traditionally, this is an occasion to distribute awards to the staff. Nhung and Dong received the title of "excellent workers of the year" and Diep was awarded a special Prize from the Minister of Science and Technology.

On June 1st, on the occasion of Vietnam Children's Day, the Institute organized an excursion to Phu Tho, the native place of Kings Hung, half real and half legendary founding fathers of Vietnam, more than two millenia ago. It is known for its hot springs where the children enjoyed playing. In July, the group spent a long week-end in Quan Lan, an island on the east side of Halong Bay where Pierre has a small house.

NEWS FROM THE VIETNAM ASTRO-PHYSICS GROUP

Diep reports below about the recent success of the Hanoi FSpace group in manufacturing a small satellite that was launched on July 21st from Japan

Our friend Tran The Trung, a very active member of our Vietnam Astrophysics Group, teaches at FPT University, where he created the FPT Technology Research Institute which hosts a team of young scientists and engineers working on a small satellite project, the Fspace Group (FPT Corporation). Around the end of 2008, they started developing and producing a small satellite, named F-1, with a size of $\sim 10 \times 10 \times 10$ cm³ and a weight of ~ 1 kg. The goal is to produce a satellite that is able to "be alive" in space, namely to send signals to a control station on ground and to take low resolution pictures (640×480) of the Earth with a data transmission speed of about 1'200 bit/sec.

F-1 passed successfully the flight safety assessment tests and was found to meet the technical standards of the Japan Aerospace Exploration Agency (JAXA): it was officially accepted in the Small Satellite Program organized jointly by JAXA and NASA. It was taken to the Tsukuba Space Center, Japan, to prepare for the launch. The launch successfully took place at 11h18 am (Japan time) on July 21st. In September, F1 will be released from the International Space Station (ISS) and start sending signals to the Earth.



An artist's impression of FPT University's satellite

In the world, a strong trend toward manufacturing small satellites (below 50 kg) has developed during the past ten years. The main advantages of such micro-satellites are the short construction time and the low cost, making them very attractive for training. This is the first experience of this kind in Vietnam: if successful, FPT will become the first private company in the country to have successfully constructed a small satellite, a major contribution to the development of science and of space industry in Vietnam.

Vu Trong Thu, head of the Fspace Group, said: "In addition to gradually mastering space technologies toward future applications, the FSpace Group has the ambition to open new perspectives and to convey to the Vietnamese youth a message of hope: going into space is now at hand, one can achieve what seems impossible if one has determination!"

A MEMORABLE SCHOOL IN CASTEL GANDOLFO

Hiep was selected and awarded a fellowship to attend the XIIIth Summer School in Astrophysics at the Vatican Observatory in Castel Gandolfo where he spent the month of June. He reports about this experience.

The Vatican Observatory Summer School (VOSS), an initiative of Fr. Martin McCarthy SJ, who was an astronomer at the Vatican Observatory in 1985, aims to enhance contacts between the astronomers at the Observatory and

young researchers. During the one month of lectures the young astronomers are provided with an in-depth exploration of some particularly important aspects of modern astrophysics. The school has been taking place every second year ever since 1986.

This year, the thirteenth Summer School in Astrophysics was held at the Vatican Observatory in Castel Gandolfo, south of Rome, and focused on the formation and evolution of star clusters. From 155 applicants, only 25 were selected and, most fortunately, I was one of them. One of the main criteria for the selection of the participants was to show promise of a successful professional career in research in astronomy. In fact, of the 300 students who have graduated from these schools since their foundation in 1986, most of them are still active and successful in research.

Traditionally, most students come from developing countries. This year's school included students from 23 different nations, reaching from Eastern Europe, Latin America, Africa, and Southeast Asia to Western Europe and North America. Thanks to contributions of individual donors and of the Vatican Government, the participants receive important financial support, covering between three quarters and the totality of their expenses.



School picture at the Vatican Observatory

The faculty of this year's school, under the direction of Professor Douglas Heggie from the University of Edinburgh, included two alumni of previous summer schools: Dr Nate Bastian, of the Excellence Cluster (a consortium of universities associated with the European Southern Observatory in Munich), and Mark Gieles, from the University of Cambridge. The other members of the faculty were Dr Francesca D'Antonia from the Italian National Institute for Astrophysics and the Astronomical Observatory of Rome, Fr. José Gabriel Funes SJ, director of the Vatican Observatory and David Brown SJ, an astronomer working at the Vatican Observatory.



Hiep with students from Bulgaria (middle) and Thailand (right) inside the St. Peter's Basilica in Vatican

I feel honored and particularly fortunate for having got the chance to take part in this Summer School. I am very grateful for it! It was the best summer school I ever attended, a beautiful experience, probably the most beautiful in my life. The school was a wonderful opportunity to meet students from all over the world and made us feel like a big family. For four weeks we studied, learned, shared, and partied together, surrounded by the wonderful environment of Castel Gandolfo. After only a few days, I felt like knowing these people for a much longer time already. Our daily schedule included morning lectures at the "Specola" (Observatory in Italian) held by distinguished faculty professors followed by three student presentations on their home countries, institutes and research. Occasionally, additional evening seminars were presented by the Vatican staff and visiting astronomers. In the afternoons we were free to choose between many scientific activities such as laboratory exercises, data reduction using the computers of the Observatory, image processing, running/analyzing N-body simulations, and using

astronomical databases. These days were highly interesting, enlightening and inspiring for me! I learned so much from the lectures and from talking and group working with the other students.

One of the highlights of the school was the observation of the Venus transit that occurred on an early Wednesday morning. Together, we walked across the Pope's "secret gardens", a gigantic complex of ruins, flowers and wild nature, to reach the Observatory located on top of Castel Gandolfo. With the beautiful, large blue lake Lago Albano below us, we observed this fascinating phenomenon of nature. This was my first and last chance to see such a transit since Venus will no longer cross the Sun for the next hundred years.

In addition, it was the first time I have been in Rome and I was overwhelmed by its beauty. We visited many famous sites: the Colosseo, the Trevi Fountain, the Forum Romanum, Castel Sant'Angelo, the Victor Emmanuel Monument, as well as many amazing and beautiful churches. Furthermore we had trips to sites of historical interest to astronomy each weekend: We went to Florence, a peaceful city, where we visited Galileo's house, the observatory where Galileo worked the last year of his life and the Galileo museum. On our way back to Rome we stopped at the tower of Pisa and took thousands of pictures. During our third week, the entire school — including students and faculty had an audience with Pope Benedict XVI in a public hall. After he blessed us all, we got a tour of the Vatican Gardens and the Vatican Museum. We finished this great day in the Vatican with a huge collection of pictures at St Peter's square (Piazza San Pietro).

Everybody enjoyed this time a lot and wanted to learn as much as possible from the school. We carried home a great big bag of new knowledge about which we are determined to do further studies. All 25 students of the summer schools share special memories with each other. We have forged friendships for a lifetime while learning about other countries and cultures. Only one month of living and working together was enough to remember this 'magic' school forever. Every thing we did, we were together! It was very hard to say goodbye. Finally, I would like to thank the organizers, Fr José Gabriel Funes and Fr P. David Brown, for making this summer school possible, as well as all the other teachers and students for interesting discussions and useful advice.

THREE WEEKS IN MALARGUE

Dong spent three weeks in May at the Pierre Auger Observatory in Malargüe. He reports on his stay.

On April 14th, we received a mail from Karl Heinz Kampert, the Auger spokesman, entitled: "FD in a state of emergency: may stop data taking". He was explaining that we were running into the danger of having to stop data taking in May because the Fluorescence Detector (FD) shifts were not yet properly manned: only two people had signed up while six were required. It so happened that three days later, on the 17th, by pure chance, Patrick Aurenche, in charge of the "Laboratoire International Associé" agreement that we have with the French CNRS, informed us that a sum of 4'000 euros had been granted to VATLY, sufficient to pay for the plane ticket and living expenses. We immediately decided that I should go, it was a new experience for me and I was eager to take the opportunity.



Dong and Pedro Barraza on top of a Cherenkov tank

In only ten days, I had to get a visa and to buy the plane ticket. I found a cheap fare but it took me two days to reach Argentina. I reached Malargüe just on time to join the shift team and to attend the training session that had been organized

for us. It was for me the first time I took shifts in Auger. It was also the first time that I had a chance to visit one of the four FD Stations – Los Leones – under the guidance of Primo Gómez Vitale. Los Leones stands on a hill; from the roof of the station, the view on the Pampa Amarilla is beautiful. I was together with Rita de Cassia dos Anjos, a Bresilian physicist for whom it was also the first shift, and we both got briefed by Primo and Daniela who told us what had to be done: source and LIDAR calibrations, shutter operation, etc...

There were two shifts per night, one from 6 pm to 1 am and the other from 1 am to 8 am. The shifts usually went smoothly but we experienced some problems with the LIDAR and with the FD monitoring control, which we had to cope with. Also, sometime, we had an alarm caused by bad weather conditions: we were already well in winter.



Dong took a shift together with Daniela Maurizio

The shift schedule kept us quite busy, but we managed to have a few days off. It gave me the opportunity to spend two days with the maintenance team, thanks to Ricardo Sato. I went on the site with Juan Pablo Góngoda and Pedro Barraza. We left in the early morning and drove a truck in the field to fill some of the SD tanks with water. It was such a wonderful journey, the landscape was beautiful, I really enjoyed it. We had to drive across private properties to reach the tanks. The temperature was quite low, as soon as we were out of the truck, our fingers were freezing: I realized how hard it is to maintain the array under such conditions and felt much respect and admiration for those who have been doing it for so many years. There was a special pleasure in touching the tanks with my hands, feeling the vibrations of the water rising inside: they no longer were numbers in a data file, but something real. This was a really memorable experience.

INTERVIEW OF DR TRAN CHI THANH



Dr Tran Chi Thanh

Dr Tran Chi Thanh has just been appointed in the Chair of the Vietnam Atomic Energy Institute (VAEI or recently called VINATOM), former Vietnam Atomic Energy Commission, of which the Institute for Nuclear Science and Technology, host of VATLY, is part. Dr Thanh studied in Moscow and received his PhD in 2009 from the Swedish Royal University of Technology for studies on nuclear power safety for which he was awarded the prestigious Sigvard Eklund Prize 2011. As a member of the Institute of Energy of the Vietnamese Ministry of Energy (now called of Industry and Trade), he was the project manager of the Pre-Feasibility Study (Pre-FS) on introduction of the first nuclear power plants in Vietnam during the years from 2002-2005. In a recent interview, he declared: "I decided to return to Vietnam because I had spent nearly 20 years studying, working and researching overseas [...] and, being over 40, I felt that I had not done much for the country [...] I believe in the future of nuclear power. I want to take part in Vietnam's nuclear power development programs, together with my colleagues in the country". We express to him our deepest gratitude for having very kindly

accepted to be interviewed by Diep and Nhung, who report below. His daughter Lien, aged 17, walks in the steps of her father: as a school student, she has been awarded prestigious prizes in mathematics and music and will be enrolling at Yale University in the fall! VATLY wishes father and daughter much success in the years to come!

VATLY: Vietnam is preparing for running a first nuclear plant in 2020 or so. There is an obvious need for training many people: engineers, technicians, scientists and the time left to do so is very short. What are your priorities, how do you see this training organized, which is the specific role of VAEI and, more specifically, of INST?

Tran Chi Thanh: Yes, I agree that the time is very short until 2020 for preparing and training necessary human resources for running the first nuclear power plant. On the one hand, we have to separate two groups of human resources for the national nuclear power program, the first is human resources for the utilities such as EVN (Electricity Viet Nam) and MOIT (Ministry of Industry and Trade) – i.e. managers, engineers, technicians for operation and maintenance of the nuclear power plants - and the second is human resources for R&D organizations (including education and training structures) which are technical support organizations for the safe operation of nuclear power plants in the long term. On the other hand, education and training programs for human resources development are mutually integrated and supporting each other. For the nuclear power program, there is a need to establish a long term national education and training plan which makes use of the infrastructures of education, training structures in general, and research structures available in the field of atomic energy in particular. This program should play the role of national strategy in education and training human resources for the nuclear power program. Unfortunately, currently, Vietnam lacks such a program.

My priority in education and training for nuclear power is given to the second group, it is also my duty. As I see it, the education and training program for R&D may have several stepby-step solutions: selection and training of capable researchers through research projects;

establishment and reorganization of nuclear engineering faculties in few (very few) selected good institutes for education and training (focused investments for improvement of education and training quality); and sending young and capable researchers abroad for study in the field of nuclear science and technology. Training with short courses (national or international) is okay, however it is not significant and not effective. Currently Vietnam Atomic Energy Institute (VINATOM) has a good human resource and research infrastructure. The VINATOM should play an important role in education and training for nuclear power program in close cooperation with institutes such as the Hanoi University of Science and Technology (HUST), or the Hanoi University for Natural Sciences (HUS/VNU). The Institute for Nuclear Science and Technology (INST) is one of the three research institutes of VINATOM, therefore, its role is vital.



Dr Thanh visiting VATLY. Left to right: Dr Thanh, Thieu, Nhung, Diep, Pierre and Khoa

Moreover, there exists a plan to invest Russian funds in Nuclear Science and Technology R&D in Vietnam, much of it will be devoted to the exploitation of a new research reactor in Da Lat, and part of it to a new Research Centre in VAEI. Recently we have defined few important research directions for the latter, which should be promoted in INST: nuclear physics (including astrophysics), reactor physics, thermal-hydraulics and mechanics (nuclear power safety), radiation safety and environmental monitoring, nuclear electronics, and material science. In these fields, we already have leading experts and core research

groups which can be developed, not only within VAEI but also by hiring staff from outside, such as scientists and engineers having been trained abroad. They will have to collaborate with research teams in Vietnam Academy of Science and Technology (VAST), Institute of Mechanics, HUST, HUS/VNU, etc. These groups will have the task to train the next generation by creating favourable conditions for master and doctorate training. They will work hard to progress; they are the human resources we need for the future.

VATLY: The accident of Fukushima, although having made essentially no victim compared to the tsunami, had a tremendous psychological impact on populations worldwide who tend to mix the effect of the tsunami with that of the radiation accident. How do you gauge the importance of this psychological impact in Vietnam and what do you think needs to be done to prevent negative consequences?

Tran Chi Thanh: Yes, although the Fukushima accident made no real victim, the psychological impact on population worldwide and of Vietnam in particular is very significant. Even if most Vietnamese do not really well understand much about nuclear power plants and radiation, many feel that the nuclear power plants are a danger after the event, similarly to what was observed after Chernobyl. People are worried about safety and radiation hazards. Such mentality impacts somewhat on the Vietnamese nuclear power program. During the past months, several articles have appeared in the press against nuclear power and the Vietnam nuclear power program. There are two parallel strategies to mitigate and avoid the negative consequences. The first is to improve national capability in science and technology, especially in the field of atomic energy. The high level of science and technology development will recover the confidence of people. The second is a proper strategy for public information and public acceptance.

VATLY: Vietnam, in general, does not have yet a strong sensitivity to the problems of safety.

However, running a nuclear plant requires a very strict "culture" in this domain. What are your views on the safety aspects?

Tran Chi Thanh: The safety culture plays an important role in nuclear power safety. However, culture cannot change overnight, it takes a very long time; this is why education and training in safety culture is essential. Especially, a good safety culture and strict discipline are required for the people working in the nuclear power plants. Good and advanced designs of nuclear power plants are also important for Vietnam.

VATLY: VATLY is a laboratory dedicated to fundamental research in astrophysics, which has not much to do with the mission of INST, its host institute. We do our best to create in VATLY the spirit of scientific excellence, of intellectual and which characterizes moral rigor, scientific research at its top level and we feel that our effort and progress is properly acknowledged. Yet, while we maintain with the INST management excellent and very friendly relations, for which we are deeply grateful, we sometimes fear that someone, some day, might decide that we have nothing to do here. Which is your position on this question?

Tran Chi Thanh: I only recently got to know the VATLY team and astrophysics research at INST. Yet, I see in VATLY a very good example for other research groups. The way you are working together, the research and collaborative atmosphere, your results and publications, your training method etc. are excellent. VATLY is a worldwide research group. All these achievements have been made under the guidance of Professor Pierre Darriulat. I would like to take this chance to express my sincere thanks to him for all he has done for INST, and VINATOM. My position is to support the VATLY team. I also want to encourage other research groups to follow their methods and experience. This is what I like to see for the future research groups in VINATOM. I wish Pierre and all members of VATLY good health, happiness and success in their research!

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Issues 1 to 16 of VATLY's Newsletter are available from our web site where you can also find general information concerning VATLY such as membership, list of publications, etc... <u>http://www.inst.gov.vn/Vatly/Vatly.htm</u>





On top of Los Leones. Left to right : Rita Anjos, Daniela Maurizio, Primo Gómez Vitale and Dong.



Dong having diner with D. Pittock and A. Schmidt



Hiep (with white shirt, back row) with his schoolmates in front of Colosseo



Inside one of the eyes of Los Leones FD station



VALY members having dinner with P. Lesaffre and G. Patanchon



Hiep with his friends on Ponte Vecchio crossing over Arno river in Firenze



Hiep with a Thai student at Fontanone del Gianicolo



Hiep with two other students from Nepal (left) and Madagascar (middle) at Pisa cathedral



Tuan Anh, proud of having found a tachypleus on a Quan Lan's beach



VATLY members and friends on a Quan Lan's beach



Thao caught seashells in Quan Lan



Left to right : Linh, Ngoc (two colleagues from INST) Nhung, Tuan Anh and Hoai in Quan Lan



Back from Phu Tho (Hoai and Nhung at extreme left and Diep at extreme right)



Khoi, Diep's son, visited VATLY for a few afternoons and was right away adopted as an honorary member



Hoai in Phu Tho



Riding a tuk-tuk in Quan Lan



School picture in the Pope's secret garden in Castel Gandolfo