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abdus salam

international centre for theoretical physics

1964
40th anniversary
2004



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Alpine Nation

More than its Roman ruins and Renaissance cities, more than its medieval castles and meticulously manicured agricultural landscape, more than its matchstick forests and endlessly varied coastlines, the Alps—Europe's majestic mountain chain that stretches some 1100 kilometres from southern France in the west to Slovenia in the east—symbolise Europe's permanence and solidity.

In fact, when you think of an immovable object, the Alps would certainly qualify. Or so it seems.

But the truth is that the Alps are in constant motion, shifting about 6 millimetres each year, as Africa continues to creep northward in an endless display of nature's raw and relentless energy. The result of this terrestrial 'give-and-take' is the creation of spider-like fissures and fractures lying just beneath the surface.

This spring the European Union's Alpine Space Programme approved funds for a 3-year €2 million grant to study how the Alps are being reshaped by the daily stresses and strains that they face. ICTP's SAND (Structure and Non-Linear Dynamics of the Earth) group will coordinate the project, which will be housed at the University of Trieste's Department of Earth Sciences.

"The purpose of the grant," says Giuliano F. Panza, professor of seismology at the University of Trieste and head of the SAND group, "is to try to understand how the Alps have evolved over time and to make science-based projections about what may happen to them in the future, especially in terms of potential seismic activity."

"To meet the project's objectives," adds Karim Aoudia, SAND research scientist and the project's principal investigator, "we will rely on fundamental scientific tools."

"First, we will conduct a comprehensive review of existing seismological studies of the Alps to literally acquire an in-depth understanding of the current state of knowledge concerning the behaviour of the Alps. Second, we will develop additional knowledge about the region through the use of 30 high-precision ground positioning satellite (GPS) receptors that will be put in place across the Alps. And third we will use the information and knowledge that we acquire both from the seismological studies and the GPS receptors to build numerical models designed to simulate the behaviour of the Alps both now and in the future."

The Alps are a relatively young mountain chain having emerged from the ocean beds of western and central Europe

more than 25 million years ago. Other mountain chains, including the Appalachian Mountains in the eastern United States, are 250 million years old. The endless fissures and fractures that characterise the Alps, moreover, stand in sharp contrast to the gaping faults that drive the behaviour of other mountain chains such as the Sierra Nevadas in the western United States.

"The distinctive features of the Alps," notes Panza, "create a distinctive set of challenges for researchers."

"First of all the Alps' spider-like fissures and fractures mean that energy-release points are much more numerous in the Alps than in many other mountain chains, including the Sierra Nevadas where the San Andreas fault serves as the primary 'fault line' in any seismic activity. Second, the Alps' numerous faults mean that the motion often takes place in more subtle ways than in other mountainous earthquake zones."

"For this reason," says Aoudia, "we will be using instruments that can precisely measure motion at the millimetre scale, marking the first time that scientists will have examined the motion of mountains at this microscale."

Panza and Aoudia hope that their efforts will not only help improve our understanding of the behaviour of the Alps but will shed light on the behaviour of other earthquake-prone mountain regions as well.

"We are confident that the information and skills we acquire through this project can be utilised by scientists throughout the North and South. While the dynamics of the Alps may differ from the Sierra Nevadas in the United States, they are quite similar, for instance, to what we find in Asia," notes Panza. Substitute the Himalayas for the Alps, India for Africa, and south central Asia for western and central Europe, and you are essentially looking at the same situation. India is slowly—nearly imperceptibly—pushing its weight northward creating stresses and strains on the Himalayas.

"As a result, what we do here," says Panza, "should have applications in many other places of the world. That should only increase the value of what we hope to accomplish over the next few years." □

For additional information about the ICTP SAND (Structure and Non-Linear Dynamics of the Earth) programme, see http://www.ictp.trieste.it/www_users/sand.

Open SESAME

The Fourth Meeting of the Council of the SESAME project (Synchrotron-light for Experimental Science and Applications in the Middle East) took place at ICTP on 13-14 July 2004. Council president Herwig Schopper, former Director-General of CERN (European Organization for Nuclear Research) and one of the guiding lights for SESAME since the project's earliest days, presided over the discussion.

The SESAME project will lead to the construction—or, more precisely, the reconstruction—of the first synchrotron radiation light facility in the Middle East (see "Two Steps Closer," *News from ICTP*, Autumn 2002, p. 3).

In 1999, the German government announced that it would be willing to donate its decommissioned synchrotron-light facility, BESSY I, to a developing country or region. Three years later, a group of institutions, led by UNESCO, arranged for



BESSY I to be shipped from Germany to Jordan. SESAME's official groundbreaking ceremony, took place on 6 January 2003 in Allan, Jordan (30 kilometres northwest of Amman), where King Abdullah II of Jordan laid the cornerstone for the future complex. Jordan has not only donated the land for the project but has pledged more than US\$5 million for upgrading and housing the facility.

The beams generated by the upgraded BESSY I will cover a broad range of the electromagnetic spectrum—from infrared to hard x-rays—casting light, for example, on the study of molecular biology, material science, the environment and archaeological microanalysis. More than 1000 scientists a year

are expected to conduct research at SESAME when it becomes fully operational in 2009.

"The inspiration for SESAME," Schopper recently noted, "rests with two organizations that share the same vision: CERN, which was built in the 1950s to promote peace and harmony in post World War II Europe through scientific exchange; and ICTP, whose mandate is to serve as a forum for scientific exchange and cross-cultural dialogue primarily through efforts to promote science in the developing world. Indeed if not for the research and training activities that ICTP has sponsored over the past four decades, it's unlikely the Middle East would have developed the scientific wherewithal to take advantage of SESAME."

"Since 2000," Schopper adds, "ICTP has also had lead responsibility for organizing the training of engineers who have subsequently been put to work on efforts to upgrade and expand BESSY I from 0.8 GEV to 2.5 GEV." Training has taken place at synchrotron facilities across Europe, including the *Elettra* facility in Trieste. Overall administration for this part of the SESAME project has been given to ICTP under the direction of the Centre's long-time staff scientist Gallieno Denardo.

"At first, we thought the reconstruction of the facility would have to be done by the experts who had dismantled BESSY I," notes Schopper. "However, the skill levels of the SESAME trainees advanced so rapidly that we were able to change course and turn to our own trainees to do the job. As a result, we have successfully tapped the talents of the region's technologists even before the facility has begun its operation. This is an extra bonus we did not expect."

Schopper now hopes to follow the same course in the construction of SESAME's first six beam lines. If all goes according to plan, ICTP will again be asked to manage the training programme. At the same time, synchrotron facilities throughout Europe will again be called on to host young Middle Eastern scientists who—upon successful completion of their training—will be recruited to work on the SESAME project.

"Thanks to both inspiration and hands-on help that institutions like ICTP have given to SESAME, the project is on track. We only hope that we can achieve the same level of success and impact of the two institutions that have inspired this effort in the first place: CERN and ICTP." □

For additional information about SESAME, see www.sesame.org.jo.

At the Centre with Palis

Jacob Palis, professor and former director of the Instituto Nacional de Matemática Pura e Aplicada, Rio de Janeiro, Brazil, was appointed chairperson of the Centre's Scientific Council last year. Palis, whose personal and professional ties to ICTP date back nearly a quarter century (see News from ICTP, Winter 1999, p. 13), recently sat down with ICTP's editor to discuss his long-time association with ICTP and his hopes for the Centre's future. Excerpts follow.



Jacob Palis

How did you first become involved with ICTP?

I first became involved through E. Christopher Zeeman, a mathematics professor who worked at Oxford and Cambridge universities in the United Kingdom in the 1950s and early 1960s and later was responsible for building the University of Warwick into a world-class mathematics centre. He was a close friend of Abdus Salam and, in the late 1970s, he mentioned to Salam that he would be interested in organising a series of workshops on dynamical systems at the Centre designed primarily for students from developing countries. Zeeman had a wonderful temperament and, like Salam, displayed great enthusiasm for science. In the mid-1960s, I had been a graduate student of Steven Smale at the University of California in Berkeley. Smale is a superb mathematician—a Fields Medallist, in fact. Zeeman came to Berkeley to visit for several months. He told us about his interest in launching an activity in dynamical systems at ICTP and asked me to share responsibility for it. It seemed like an opportunity that I could not possibly refuse. We held the first school in 1983, and then in 1984 established a triennial workshop in dynamical systems. Our timing could not have been better. The field of dynamical systems was emerging as a central one in mathematics with Henri Poincaré as its founder, followed by other giants like Garrett Birkhoff. The emphasis on nonlinear and chaotic phenomena and the faint hints of applications to real-world problems meant that our studies might prove useful both to other fields of science—for example, physics and biology—and for modelling phenomena like climate and population growth. All of this generated great excitement among researchers and was able to attract some of the brightest minds around. In addition to Smale, there was René Thom, *Institut des Hautes Etudes Scientifiques* in France, Solomon Lefschetz, Princeton University, and before them Andrei Kolmogorov, Moscow University, along with students like Vladimir Arnold and Yakov Sinai who went on to have illustrious careers. Young mathematicians in the developing world had a better chance

of entering the field as equal players since the subject was taking new and exciting scientific turns. That's one of the reasons we could attract such large numbers of participants from Latin America and Asia (particularly China and Iran), and to a lesser extent Africa. All of the ingredients for stimulating research, particularly in developing countries, were present: the excitement generated by the freshness of the field, the presence of some of mathematics' most prominent thinkers, the cross-disciplinary nature of our research, and the high level of interest displayed by developing world scientists. We didn't know it at the time but we were riding the crest of an intellectual wave that was breaking over the entire field of mathematics. ICTP, thanks to its triennial (sometimes biennial) workshops, found itself in the middle of all this. As Salam often told me, 'you have to dream big'. We did and we have been more than happy with the results.

What has been the long-term impact of this effort?

Our efforts certainly have had a great impact in Latin America where ICTP activities have led to the creation of a school in dynamical systems in Mexico and where the Centre has helped raise the level of both research and teaching in Chile and Venezuela. Even in my home country Brazil, where the study of dynamical systems has been a mainstay of research for a long time, ICTP symposia have been instrumental in moving us forward by providing Brazilian mathematicians with an important 'window on the world' for what is happening in the field. ICTP's dynamical systems workshops have also had a significant influence on research both in eastern and western Europe by providing a forum where the best minds can exchange information and findings. So it has not just been mathematicians from the South who have benefited from the Centre's activities but scientists from the North too. The workshops have been among the Centre's most successful events and, I hope, a symbol of how ICTP's activities can have a global reach in science and mathematics extending far beyond Trieste.

How has science changed in Brazil and other places over the last 25 years?

Brazil's scientific enterprise has experienced a great leap forward over the past several decades. Progress is due to two interrelated factors: First, the dedication and enthusiasm of a relatively small number of scientists and proponents of science, largely in government, who have made a convincing

case for building a strong scientific enterprise; second, the availability of consistent funding from government at levels that are adequate enough to enable scientists to fulfill their responsibilities as both teachers and researchers. This may sound like an obvious formula for success, but all I can say is that if it is so obvious why has it been so rare, especially in developing countries. I believe that science in Brazil has now passed a threshold that will enable it to continue to move ahead regardless of changes in the nation's politics and economics. In fact, I am convinced that a political consensus has been reached among most Brazilians who now believe economic progress depends in some measure on the strength of the nation's scientific enterprise. I would say the same situation exists in China, Chile, India, Mexico, South Africa and several other developing nations, where, simply put, science has arrived and is not about to leave.



Scientific Council 2004

What do you hope to accomplish as chairperson of the Scientific Council?

I am very pleased to have been asked to head the Scientific Council. It is indeed a great honour and a challenge. I hope that I can be proactive during my tenure and that the members of the Scientific Council and the staff can be supportive of director K.R. Sreenivasan's efforts to reinvigorate the Centre's existing programmes while developing new activities to allow the Centre to advance its great and noble goals. For example, I believe that the time is right for the Centre to forge stronger relationships with ministries of science and technology in developing countries, particularly countries such as Brazil, China and India, that have built up strong capabilities in science. Such efforts, I believe, would expand both the visibility and influence of ICTP around the world. While we reach out to new partners, I think it is important for the Centre to enhance the quality of research taking place at the Centre. The Council could play a critical role in this effort by fostering new ideas and new directions while consolidating the strong research areas at the Centre—and by instilling a renewed sense of enthusiasm.

You've been involved with ICTP for nearly 25 years. What do you envision ICTP will be like in 25 years?

My dream is for ICTP to be very visible in the world—not just among scientists but among policy makers and the public. The effort begins with the high quality of the scientists and staff who work for the Centre. They must not only do their jobs well but also bring a certain sensitivity and commitment to the Centre's unique mandate to serve the developing world. All of this requires both scientific excellence and a larger sense of purpose. ICTP's unique role in the world of science requires scientists to do their best research while interacting with others. Simply put, it is the broad visibility and presence of both the institution and the individual scientists who work here that define the true success of this great institution. In an era when knowledge is critical for

economic development and social justice, both in individual nations and on the global scale, ICTP's goals remain as important and even more urgent today than they were 40 years ago. □

For the full text of the interview, see News from ICTP at www.ictp.trieste.it.

Current ICTP Scientific Council members

F.K.A. Allotey

Institute of Mathematical Sciences
Accra, Ghana

Akito Arima

Member of the House of Councillors
Tokyo, Japan

Kenneth J. Arrow (Nobel Prize in Economic Sciences, 1972)

Stanford University, USA

Riccardo Barbieri

Scuola Normale Superiore
Pisa, Italy

Jia'er Chen

Peking University
Beijing, China

Claude Cohen-Tannoudji

(Nobel Prize in Physics, 1997)
Laboratoire Kastler Brossel
Paris, France

Paul J. Crutzen

(Nobel Prize in Chemistry, 1995)
Max Planck Institute for Chemistry
Mainz, Germany
Scripps Institution of Oceanography
La Jolla, CA, USA

James Langer

University of California at Santa
Barbara, USA

Vladimir Lebedev

L.D. Landau Institute of Theoretical
Physics
Moscow, Russian Federation

Jacob Palis (Chair)

Instituto de Matemática Pura e
Aplicada
Rio de Janeiro, Brazil

S. George H. Philander

Princeton University, USA

Ashoke Sen

Harish-Chandra Research Institute
Allahabad, India

Jean-Christophe Yoccoz

(Fields Medal, 1994)
Collège de France
Paris, France

That 1970s' Centre

The 1970s began with the United Nations Educational, Scientific and Cultural Organization (UNESCO) joining the International Atomic Energy Agency (IAEA), the Centre's original UN sponsor, as a full partner in the management of ICTP. The decade ended with the awarding of the Nobel Prize to Abdus Salam for his contributions to the theoretical unification of the electromagnetic and weak forces.

The first event signalled that the Centre's research and training activities would move beyond their initial focus on high energy, nuclear and plasma physics (a reflection of IAEA's mandate) to encompass broader areas of study that fell within UNESCO's responsibilities to promote the basic sciences.

UNESCO's anticipated arrival had spurred the creation of an *ad hoc* committee in 1969. The committee, led by the Dutch physicist Hendrik B.G. Casimir, research director of Philips Research Laboratories in the Netherlands, not only commended ICTP for five years of excellent work but suggested that ICTP expand its activities into other physics-related areas.

As a result, the 1970s witnessed the launching of courses in computing as a language of physics (1971); applied mathematics (1972); atomic, molecular and laser physics (1973); the physics of ocean and atmosphere (1975); science teaching (1976); non-conventional energies (1977); and mathematical economics (1978).

In 1977, another *ad hoc* committee, led by Léon Van Hove, research director general of the European Organisation for Nuclear Research (CERN), in Geneva, Switzerland, urged that biophysics and earth sciences be added to the Centre's curriculum and that computing facilities be made readily

available. Both recommendations would turn into reality by the early 1980s.

The second event, which took place in Sweden in



International Symposium on the Development of the Physicist's Conception of Nature in the Twentieth Century, dedicated to P.A.M. Dirac on the occasion of his 70th birthday, 18-25 September 1972

December 1979, marked a dramatic turning point in the history of the Centre. The acclaim that accompanied the awarding of the Nobel Prize to Salam in 1979 made both him and the institution that he founded world famous. That notoriety, in turn, set the stage for a period of feverish expansion in the 1980s.

While these momentous events provide convenient 'bookends' for the 1970s, the decade itself is often viewed as a time of consolidation sandwiched between the dramatic formation of ICTP in the 1960s and its unprecedented growth in the 1980s.

I remember to this day the remark that Abdus Salam made soon after we had moved from the Centre's original location in Piazza Oberdan, in downtown Trieste, to the newly constructed Main Building on Miramare campus facing the Adriatic Sea.

"Now," he said in a booming voice laced with an English accent, "we've got to fill this bloody place."

That was the challenge Abdus Salam set for himself as he peered down the empty corridors of the Main Building in the early 1970s. For him and all those involved in the Centre, it was truly intimidating to think that ICTP had quadrupled in size—physical size, that is—less than a decade after its birth.

In many ways, Abdus Salam's plaintive call—driven by equal doses of excitement and anxiety—captured the essence of the decade.



Summer College on Global Analysis and its Applications, 4 July - 25 August 1972

In effect, that was what the 1970s were about: filling space both physically and, more importantly, with an active scientific agenda worthy of ICTP's lofty goals.

The number of scientists visiting the Centre throughout the 1970s was small, averaging about 1000 each year. Accordingly, the number of permanent staff and scientists was extremely small but it was complemented by strong interaction with the physicists at Trieste University who were effectively acting as the scientific staff of the Centre. In addition, many scientists working for the Centre were employed



Topical Meeting on Gravitation and Field Theory, 13-16 July 1971

as professors elsewhere and usually came to Trieste for several weeks or months each year on a temporary basis.

During the decade, the Centre served as a focal point for such research topics as the standard model, and the interaction of particles and nuclei.

It is also important to note that the pace of the Centre's activities was far different than it is today.

ICTP research and training activities tended to be fewer in number and longer in length. Take, for example, the Workshop on Solid State Physics in 1972. It began on 15 April and ended on 31 August, attracting 64 scientists from 21 countries. Or, the Autumn Course on the Applications of Analysis to Mechanics in 1976, which began on 22 September and continued until 3 December. It had 80 participants from 30 countries. In fact, the scientific calendar in 1972 consisted of just 5 activities; the calendar in 1976, 14.

All of this meant that for large stretches of time, especially in winter, the Centre was a quiet—indeed an empty—place which, in Salam's words, needed to be "filled up."

Yet the limited number of activities held at the Centre each year did not mean that ICTP was a cold and unfriendly place. The corridors may have at times been empty but the place was imbued with a warm inviting atmosphere that was to become a hallmark of the institution and one of its most attractive characteristics. ICTP, thanks largely to the dedication of its staff, quickly evolved into a 'people friendly' scientific institution.

In fact, the small number of activities and the intense interaction that took place at the workshops and courses nurtured a strong sense of belonging for those who were involved. Add to all this the prevailing belief that we were building a unique and valuable institution, as well as Abdus Salam's unwavering enthusiastic commitment to the cause, and it is not difficult to see why many of us felt we were a family. Scientists often spoke of the Centre as their 'second

home.' I think it is fair to say that many staff felt the same way.

And because ICTP had no guesthouses—the Galileo Guesthouse did not open its doors until 1982 and the Adriatico Guesthouse until 1985—all of our lecturers and participants had to be housed in apartments and rooms in downtown Trieste. This meant that visitors to the Centre enjoyed continuous interaction with the citizens of Trieste in ways that enabled our guests to learn firsthand about the city and for *Triestini* to learn, often in a personal way, about the unique contributions that the Centre was making to the life of their city. Science was our main business, but cross-cultural dialogue was an added benefit not just in the Centre itself but in the community beyond.

The Italian government's contributions to the Centre averaged about US\$350,000 a year throughout the 1970s. To supplement this funding, the Centre successfully sought and acquired programmatic funding from a variety of external sources. The United Nations Development Programme (UNDP), for example, provided funds from 1971 to 1978 for activities in solid state physics and mathematics, and the Swedish

International Development Authority (SIDA) partially funded the Associateship Programme from 1969 as did the Ford Foundation from 1967 to 1973.

These external sources of funding enabled the Centre to both deepen and broaden the range of its activities at a time when observers were watching closely to see if the nascent institution would be able to fulfill its promise. The financial security that ICTP enjoys today, marked by the ongoing generosity of the Italian government, which accounts for more than 80 percent of the Centre's budget, is due in no small measure to ICTP's ability to develop a strong and enduring roster of research and training activities during the 1970s and to devise effective mechanisms for ensuring that scientists were well cared for during their stay in Trieste.

That's the kind of 'quiet' stuff that made the 1970s so critical to ICTP's long-term success. In retrospect, the 1970s weren't that quiet at all. □



Galileo Guesthouse cornerstone laying ceremony, 28 June 1977

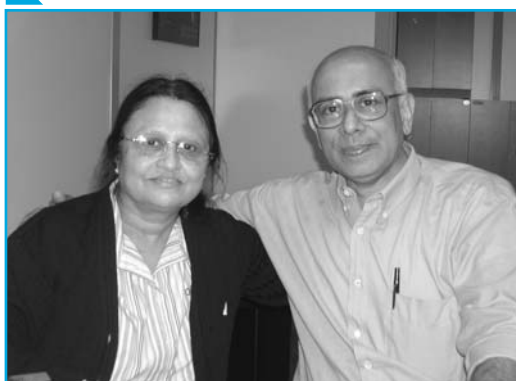
Colavita Retires

Alberto A. Colavita, long-time head of the ICTP-INFN (Italian National Institute of Nuclear Physics) Microprocessor Laboratory, retired in March. For the past 15 years, Colavita coordinated several research and development projects and training activities with international scientific organisations, universities and industries—most notably INFN, the International School for Advanced Studies (SISSA), the European Organization for Nuclear Research (CERN), and the United Nations University (UNU). By giving many scientists, mainly from developing countries, the opportunity to conduct research in microelectronics and related fields and to attend training courses, the Microprocessor Laboratory, under Colavita's leadership, has helped stimulate the growth of this research field in the South.



Alberto Colavita

All in the Family



Radha and Venkataraman Balakrishnan

When theoretical physicists **Venkataraman and Radha Balakrishnan** visited ICTP this May, it was the first time they had travelled to the Centre together.

Both, however, had been to the Centre on numerous occasions before—individually. Balakrishnan ('Bala' for short) works on statistical physics at the Indian Institute of Technology, Madras. Radha specialises in nonlinear dynamics at the Institute of Mathematical Sciences. Both institutions are located in Chennai (formerly Madras), where the couple has lived for nearly 25 years.

"The Centre," says Bala, who was an ICTP Regular Associate from 1988 to 1993, "has been an important part of my career. I first came here in 1982, and subsequently visited ICTP several times to attend the Centre's condensed matter workshops and conferences. I was also one of the first researchers to benefit from ICTP's Training and Research in Italian Laboratories (TRIL) programme, spending several months at the *Politecnico di Milano* in 1983 working on the mechanical behaviour of solids, my main research interest at the time. After a hiatus of more than a decade, I returned to the Centre in 2001 during my sabbatical

year to do research and teach statistical physics in the Diploma Course programme."

Radha has also travelled frequently to ICTP since her first visit in 1984, often alternating trips with her husband so that one of them could stay at home with the children. A Senior Associate of ICTP from 1992 to 1997, she says the Centre has meant a great deal to her career. "Not only did it allow me to keep up with current developments in my field during the early years of my career, but it has also led to scientific collaborations and friendships that continue to this day. Hao Bai-Lin from China, Rossen Dandoloff from France, and Janusz Holyst, from Poland, are some of the physicists whom I first got to know at the Centre and with whom I have worked."

Bala and Radha, who met at the University of Delhi as undergraduate students and then went to Brandeis University in the United States where they earned their doctoral degrees, collaborated and co-authored several papers during the early years of their careers.

"I shifted fields from high energy physics to condensed matter and many-body physics soon after earning my Ph.D. degree, largely to work with Radha," Bala explains. "But gender barriers contributed to our decision to ultimately pursue separate career tracks," says Radha. "I'd often be asked how much of the joint work was 'really' mine. To ensure that I would be accepted as a researcher in my own right, I decided to move into the sub-field of nonlinear dynamics, which was really gaining momentum at the time."

Today, with their children grown (their son recently became a tenured associate professor at the Massachusetts Institute of Technology and their daughter is a doctoral student at Stanford University), Bala and Radha now have the freedom to travel to Trieste together—each, on their own, having been part of ICTP's extended family for many years.

Director Meets President of Iran

Mohammad Khatami, President of Iran, met with ICTP's director, **Katepalli R. Sreenivasan** on 13 May. The meeting, which took place at President Khatami's office in Tehran, was attended by **Reza Mansouri**, Deputy Minister for Research Affairs in the Ministry of Science, Research and Technology (and former ICTP Associate 1988-1994); **Seifallah Randjbar-Daemi**, head of ICTP's High Energy Physics group; and **Giuliano F. Panza**, head of ICTP's Structure and Non-Linear Dynamics of the Earth (SAND) group. President Khatami graciously acknowledged the value of ICTP and its work and expressed his appreciation for the Centre's contribution to science in Iran. During his week-long trip, the Director also addressed a meeting of Iran's university presidents and travelled to Sri Lanka where he met with ICTP Associates and officials at the Centre for Graduate Studies in Peradenya.



President of Iran Mohammad Khatami and ICTP director K. R. Sreenivasan

IAMP to Trieste

The secretariat of the InterAcademy Medical Panel (IAMP), a group of 45 medical academies or medical divisions within national science academies, will move to Trieste from the US National Institutes of Health this autumn. Guy de Thé, cochair of IAMP, made the announcement at a news conference held on 19 May at ICTP. IAMP will be located on the 7th floor of the Adriatico Guesthouse and will operate under the administrative umbrella of the Third World Academy of Sciences (TWAS). For additional information, see www.interacademies.net.

Academy Honours and Prizes

Several scientists closely associated with ICTP have recently received prestigious awards and honours. **Alan Guth**, Massachusetts Institute of Technology, and **Andrei Linde**, Stanford University, have won the Peter Gruber Foundation's Cosmology Prize 2004 for their core contributions to the theory of cosmic inflation. They will receive US\$100,000 each. Guth and Linde, co-recipients of the Dirac Medal in 2002, have visited the Centre on numerous occasions (see "Universal Inflation," *News from ICTP*, Summer 2003). **Simon Levin**, who has participated in ICTP courses on mathematical ecology since the mid-1980s, has been awarded The Royal Netherlands Academy of Arts and Sciences A.H. Heineken Prize for Environmental Sciences 2004 for his insights into the effect of scale on ecosystems. The prize includes a cheque for US\$150,000 (see "When Math Meets Ecology," *News from ICTP*, Spring 2000). Sir **Partha Dasgupta**, professor of economics at the University of Cambridge, UK, and co-director of the ICTP-hosted Ecological and Environmental Economics programme, has been elected a Fellow of the Royal Society. The Society honoured Dasgupta for his "uniquely outstanding contributions to environmental biology and ecology." (see "Valuing Nature through Science," *News from ICTP*, Summer 2002). The Royal Society also elected **Michele Parrinello**, Swiss Federal Institute of Technology, Lugano, Switzerland, a foreign member. Parrinello is being honoured for "his contributions to computer simulation methodologies and algorithms that have had a major impact in the physical sciences." In the 1980s, Parrinello spent several years in Trieste working for both SISSA and ICTP (see "Models of Behaviour," *News from ICTP*, Autumn 2003). **Padma Kant Shukla**, world-renowned expert in theoretical plasma physics, who has visited the Centre on numerous occasions and most recently has served as course director of the Workshop on Theoretical Plasma Physics, has been awarded an honorary doctorate in sciences by the Russian Academy of Sciences.



Alan Guth



Andrei Linde



Simon Levin



Partha Dasgupta



Michele Parrinello



Padma Kant Shukla

In the Net

Romualdo Pastor Satorras, *Universitat Politècnica de Catalunya*, Barcelona, Spain, and **Alessandro Vespignani**, *Université de Paris XI (Paris-Sud)*, Orsay, France, have recently coauthored *The Evolution and Structure of the Internet: A Statistical Physics Approach* (Cambridge University Press). Vespignani was a research scientist with the Condensed Matter Physics group for five years and Pastor-Satorras was an ICTP postdoctoral student for two years. Their collaboration on the book began in 2001 when they were both at ICTP.

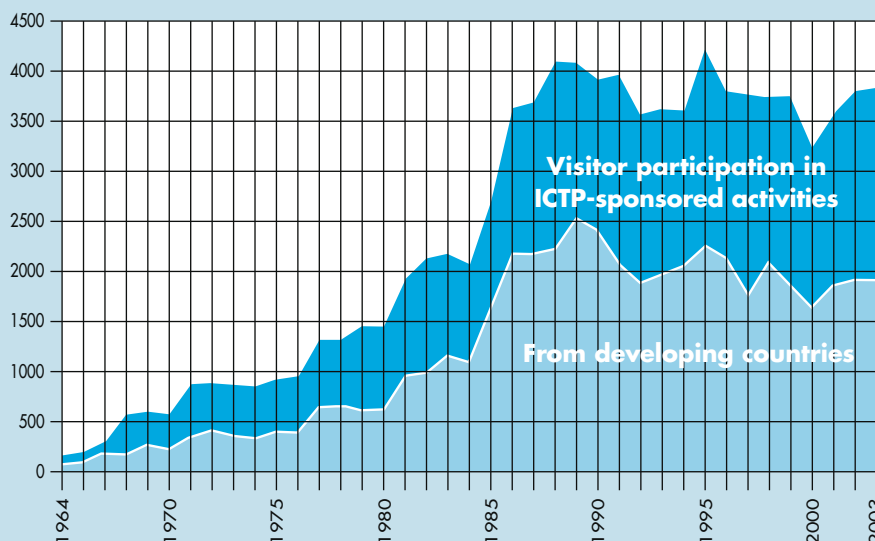
ICTP Welcomes Iraqi Scientists

UN sanctions against Iraq have been lifted. ICTP may now accept applications from Iraqi scientists interested in attending Centre research and training activities. The sanctions had been in place since 1991.

Number of scientific visits at ICTP since 1964

Since its inception in 1964, the Centre has received nearly 100,000 visits from scientists worldwide. Approximately half of the scientists have come from the developing world.

In 1964, ICTP had 154 visitors from 40 countries. In 2003, 3840 from 124 countries. About 1000 of them come back to Trieste more than once and another 1500 visitors came to participate in activities hosted by the Centre, boosting the total number of visits to the Centre in 2003 to nearly 6000.





ACTIVITIES



WORKSHOP ON INTEGRATED ASSESSMENT OF SUSTAINABLE DEVELOPMENT

1 - 2 April

Organiser: C. Carraro (*Fondazione ENI Enrico Mattei*, FEEM, and University of Venice, Italy).
Local Organisers: M. Marsili (ICTP) and M. Eberle (FEEM).

WORKSHOP ON WEB ENABLING TECHNOLOGIES AND STRATEGIES FOR SCIENTIFIC e-LEARNING

14 - 23 April

In cooperation with the Department of Theoretical Physics of the University of Trieste.

Organisers: E. Canessa (ICTP) and G. Pastore (University of Trieste).



2ND WORKSHOP ON SPATIAL DYNAMIC MODELS OF ECONOMICS AND ECO-SYSTEMS

Directors: K.-G. Mäler (The Beijer International Institute of Ecological Economics, Stockholm, Sweden) and J. Wilen (University of California at Davis, USA).



followed by
WORKSHOP ON SPATIAL ASPECTS OF RESERVE DESIGN OPTIMIZATION UNDER ECONOMIC CONSTRAINTS

15 - 21 April

Directors: S. Levin (Princeton University, Princeton, New Jersey, USA), C. Revelle (Johns Hopkins University, Baltimore, Maryland, USA) and J. Vincent (University of California at San Diego, USA).

Local Organisers: M. Marsili (ICTP) and M. Eberle (*Fondazione ENI Enrico Mattei*, FEEM, Italy).

WORKSHOPS ON CLIMATE VARIABILITY IN THE 20TH CENTURY (C20C)

19 - 30 April

International Climate in the Twentieth Century (C20C) Project (19-23 April)

Directors: C. Folland (Hadley Centre for Climate Prediction and

Research, Bracknell, UK) and J. Kinter (Center for Ocean-Land-Atmosphere Studies, Calverton, Maryland, USA).

Climate Variability Studies in the Ocean (26-30 April)

Director: P. Povinec (Marine Environment Laboratory of the International Atomic Energy Agency, Monaco).

Local Organisers: F. Molteni (ICTP) and A. Bracco (ICTP).

ICTP SCHOOL ON SYNCHROTRON RADIATION AND APPLICATIONS - IN MEMORY OF J.C. FUGGLE AND L. FONDA



19 April - 21 May

In cooperation with Elettra Synchrotron Light Laboratory (Trieste, Italy).

Organisers: M. Altarelli (Elettra and ICTP), A. Craievich (*Universidade de São Paulo*, Brazil), C.S. Fadley (University of California at Davis, USA), M. Kiskinova (Elettra) and H. Wiedemann (Stanford University, California, USA).

RESEARCH CONFERENCE ON ADVANCING FRONTIERS OF OPTICAL AND QUANTUM EFFECTS IN CONDENSED MATTER

12 - 15 May

Co-sponsor: Elsevier Publishing Co.

Organisers: A. Pinczuk (Columbia University, New York, USA) and V. Agranovich (University of Texas, Dallas, USA).

Local Organiser: E. Tosatti (International School for Advanced Studies, SISSA, and ICTP, Trieste, Italy).

ITU/ICTP WORKSHOP ON NEW RADIOCOMMUNICATION TECHNOLOGIES FOR ICT IN DEVELOPING COUNTRIES (AFRICAN REGION)

17 - 21 May



Organisers: S.M. Radicella (ICTP) and R. Passerini (Telecommunication Development Bureau of the International Telecommunication Union, ITU-BDT, Geneva, Switzerland).

SCHOOL ON COMMUTATIVE ALGEBRA AND INTERACTIONS WITH ALGEBRAIC GEOMETRY AND COMBINATORICS

24 May - 11 June



Directors: A. Simis (*Universidade Federal do Pernambuco*, Recife, Brazil), N.V. Trung (Academy of Sciences of Vietnam, Hanoi, Vietnam) and G. Valla (University of Genoa, Italy).

Local Organiser: Ramadas T. Ramakrishnan (ICTP).

SPRING COLLEGE ON SCIENCE AT THE NANOSCALE

24 May - 11 June

Organisers: R. Car (Princeton University, Princeton, New Jersey, USA), S. Datta (Purdue University, West Lafayette, Indiana, USA), S. Scandolo (ICTP), G. Scoles (International School for Advanced Studies, SISSA, Trieste, Italy, and Princeton University).

Local Organiser: R. Gebauer (ICTP).

SECOND WORKSHOP ON THE THEORY AND USE OF REGIONAL CLIMATE MODELS

31 May - 9 June

Organisers: F. Giorgi (ICTP), J. Pal (ICTP) and L. Sloan (University of California, Santa Cruz, USA).

INTRODUCTORY SCHOOL ON RECENT DEVELOPMENTS IN SUPERSYMMETRIC GAUGE THEORIES

14 June - 25 June

Directors: L. Alvarez-Gaumé (European Organization for Nuclear Research, CERN, Geneva, Switzerland) and K. Intriligator (University of California at San Diego, USA).

Organisers: K.S. Narain, S. Randjbar-Daemi and G. Thompson (all ICTP).

WORKSHOP ON QUANTUM SYSTEMS OUT OF EQUILIBRIUM

14 - 25 June

Organisers: B.L. Altshuler (N.E.C. Research Institute Inc., Princeton, New Jersey, USA), V.E. Kravtsov (ICTP) and C.M. Marcus (Harvard University, Cambridge, Massachusetts, USA).

CONFERENCE AND SCHOOL ON UNIFYING CONCEPTS IN GLASS PHYSICS III - STATPHYS22 Satellite Meeting, Bangalore, India

Conference: 28 June - 1 July 2004

School: 25 - 26 June 2004

In association with the IUPAP (International Union of Pure and Applied Physics) 22nd International Conference on Statistical Physics (STATPHYS22).

Co-sponsor: Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR, Bangalore, India).

Organisers: S. Franz (ICTP) and S. Sastry (JNCASR).

WORKSHOP ON NATURAL CIRCULATION IN WATER-COOLED NUCLEAR POWER PLANTS

28 June - 2 July

Organiser: J. Cleveland (International Atomic Energy Agency, IAEA, Vienna, Austria).

WORKSHOP ON RANDOM MATRIX THEORY: CONDENSED MATTER, STATISTICAL PHYSICS AND COMBINATORICS

28 June - 2 July

Organisers: O. Agam (The Hebrew University of Jerusalem, Israel), B.L. Altshuler (N.E.C. Research Institute Inc., Princeton, New Jersey, USA) and P. Wiegmann (University of Chicago, Illinois, USA).

Local Organiser: V.E. Kravtsov (ICTP).

SUMMER SCHOOL IN COSMOLOGY AND ASTROPARTICLE PHYSICS

28 June - 10 July

Organisers: B. Bajc (Jozef Stefan Institute, Ljubljana, Slovenia), G. Dvali (New York University, USA), G. Senjanovic (ICTP), G. Thompson (ICTP) and F. Vissani (Gran Sasso Laboratories of the National Institute of Nuclear Physics, INFN, Italy).

Local Organiser: W. Liao (ICTP).

The Village Centre

ICTP is more than a centre. In fact, it's more like a village. And one of the offices that play a critical role in the Centre's 'village' is the **Housing Office**.

"Our office is part hotel, part rental agency, part hospitality centre and part events planner," explains **Dora Photiou**, who has headed the five-person office since 1997. The other members of the staff are **Tiziana Bottazzi**, **Elisabetta Capello**, **Stefano Coglievina** and **Michela Filippini**.



The main function of the Housing Office is managing the availability of rooms at the Adriatico and Galileo guesthouses, which together can house about 200 guests each night. The office also has signed special low-rate agreements with about 30 hotels in Trieste and the surrounding area to accommodate the overflow of visitors during peak periods. Office staff also assist in the preparation of about 200 leases a year from a database of 1000 private apartments whose owners would like to rent to the Centre's long-term visitors, including ICTP scientific and international administrative staff.

"One of the things we have noticed over the past few years," says Bottazzi, the office's senior staff person with more than 10 years'

experience, "is that our visitors have become much more eager to stay at our guesthouses than to be placed in off-campus hotels."

Photiou notes that "there are two reasons for the increased interest in on-campus housing."

"First, over the past five years, the Centre has invested a good deal of money in upgrading its housing facilities. We have added ceiling fans, refrigerators and internet connections to every room—and all rooms that had three beds now have two, providing additional privacy."

"Second, over the past two years, there has been a sharp increase in the number of hosted activities taking place at ICTP. While the participants are not officially part of the Centre's research and training activities and while the costs for these events is covered by the hosts, these visitors nevertheless often ask to stay in our guesthouses."

The result has been that the number of overnight guests rose from 4100 in 2000 to 6100 in 2003. In 2004, it's likely the number will reach 7000.

In addition to ensuring that ICTP visitors have a restful place to stay, the Housing Office also oversees the Centre's cafeterias and bars, working out the terms of reference and helping select the private vendors who provide the services. The office also manages the numerous coffee breaks, buffet luncheons and official dinners that take place during the conferences and workshops—more than 800 'hospitality' events each year.

"In 2005," Photiou says, "we plan to improve the facilities even more by renovating the bathrooms, which are 20 years old, and purchasing new beds (yes, they will be wider) and new furniture that should give our visitors additional storage and table-top space."

"Our surveys show that more than 90 percent of our visitors rate our service either excellent or good," says Bottazzi.

And what is the number-one complaint among the 10 percent of visitors who say the service is only sufficient? It's roommates who snore. "We're trying to do something about that as well," Bottazzi asserts. "The Centre recently purchased several boxes of ear plugs."

The Photo Centre

ICTP medical officer **Sandro Gallucci** recently displayed his first-ever photographic exhibition in downtown Trieste. 'Snaps' offered a colourful offbeat perspective—literally snapshots—of the doctor's travels in Italy, France, and Austria. The photographs of **Maria-Paz Alessandroni**, wife of ICTP Mathematics Group head Lê Dung Tráng, were shown in the Main Building from 28 April to 21 May. "Mind's Eye" uses infrared film, sepia- and silver-tones, and experimental paint-on-print techniques to produce impressionistic, dreamlike images. Alessandroni, who studied photography at San Mateo County Community College in California, has worked as a photographer and photography teacher in the United States and Europe.

Science for Society

A roundtable discussion on 'Science and Research for Social and Political Advancement' took place on 7 May in ICTP's Main Lecture Hall. Co-organised by Lions Club Trieste Host and ICTP, the event included remarks by **Settimio Carlo Aiello**, president of Lions Club Trieste Host; **Roberto Antonione**, undersecretary of the Italian Ministry of Foreign Affairs; **Roberto Cosolini**, councillor of *Regione Friuli-Venezia-Giulia* for Labour, Training, University and Research; **Harald Kreid**, executive secretary of the Central European Initiative (CED); **Mario Pines**, vice president of Lions Club Trieste Host; **Domenico Romeo**, rector of the University of Trieste; and **Katepalli R. Sreenivasan**, director of ICTP.



ICTP Prize Awarded

Manindra Agrawal, winner of the 2003 ICTP Prize, officially received the award and delivered the ICTP Prize Lecture on 27 May in ICTP's Main Lecture Hall. Agrawal, who is a mathematician with the Indian Institute of Technology, Kanpur, India, is currently on leave conducting research at the Institute for Advanced Study in Princeton, New Jersey, USA. For additional information, see www.ictp.trieste.it and www.cse.iitk.ac.in.



Indian Ambassador to Italy, H. Som and Manindra Agrawal

Expo 2008

ICTP director **Katepalli R. Sreenivasan** spoke before the General Assembly of the International Exhibition Bureau (BIE) in Paris on 23 June. His presentation, drawing on Trieste's proposed theme for Expo 2008, examined the critical role that ICTP and Trieste's other scientific institutions have played in the "mobility of knowledge" over the past four decades. Sreenivasan noted that the mobility of knowledge is not just an intellectual exercise but an effective way to address some of the critical challenges faced by humanity. Trieste is competing with two other cities—Thessaloniki, Greece, and Zaragoza, Spain—to host Expo 2008. BIE will make its final selection in December.

Appointment

Seifallah Randjbar-Daemi has been named special assistant to the director, a post that will allow him, among other things, to serve as "a sounding board for matters concerning the interface between the Centre and the developing world." In addition to his new responsibilities, Randjbar-Daemi will continue to head ICTP's High Energy Physics group.



India-ICTP Connections

Manmohan Singh, India's new Prime Minister who was appointed following the surprise victory of the Congress Party in national elections in May, visited ICTP in 1988 in his capacity as Secretary General of the South Commission to attend a meeting of the South Commission's Working Group on Science and Technology. The South Commission was established in 1987 under the chairmanship of Julius Nyerere, former President of Tanzania and long-time friend of ICTP's Founding Director Abdus Salam.

Correction

A photo caption in "ICTP in the 1960s: Foundations of Success", *News from ICTP* Spring 2004, p. 7, misstated the name of the speaker. It is Nobel Laureate Werner Heisenberg.

From Science to Sophia

ICTP's photographer, **Massimo Silvano**, not only chronicles the Centre's scientific activities, but has also gained notoriety as a photographer of boats and ships. In June, he enjoyed an assignment with an extra bonus when he photographed Sophia Loren who was 'baptising' the world's largest cruise ship, MSC Opera, in Genoa, Italy. The ship was built by *Chantiers de l'Atlantique* in Saint Nazaire, France.

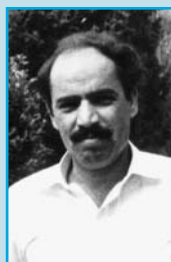


Sophia Loren in a photo by Massimo Silvano

IN MEMORIAM



Guido Gerin, a key player in the early history of ICTP, died on 26 April. He was 83. A professor of law at the University of Trieste, Gerin served as the Italian government's representative to the International Atomic Energy Agency (IAEA) in Vienna, Austria, between 1964 and 1974, ICTP's first decade of existence. In the early 1980s, Gerin returned to Trieste to head the *Istituto internazionale per i diritti dell'uomo* (International Institute for Human Rights), created under the umbrella of the United Nations Educational, Scientific and Cultural Organization (UNESCO). He devoted the latter years of his career to examining the ethical and legal problems associated with genetics research and biotechnology.



Noor Mohammad, an ICTP postdoctoral fellow 1987-1989, Associate 1990-1995, and frequent visitor, died on 13 April. He was two days shy of his 53rd birthday. Born in Raniwah, Pakistan, Noor Mohammad received his undergraduate and master's degrees in mathematics from Islamabad University (later to be renamed Quaid-i-Azam University) during the 1970s. He then taught at the Federal Government College in Islamabad for a brief period before receiving a scholarship to attend Moscow University, former USSR, where he earned a doctorate in mathematics in 1983. He subsequently returned to Quaid-i-Azam University where he remained for nearly two decades. A noted scholar in functional analysis, Noor Mohammad published more than 30 articles in refereed international journals during the course of his career.



PROFILE

Mariana Weissmann, winner of the 2003 L'Oréal Prize for Women in Science and frequent visitor to ICTP, has been at the forefront of computational physics in Latin America for the past several decades.

Full Measure of Success

As a graduate student at the University of Buenos Aires in the early 1960s, Mariana Weissmann did her first calculations on a manual calculator. Today, she relies on her desktop computer or turns to a university-based mega-computer whose calculations are driven by 48 high-powered processors.

"At one point we carried punch cards from one building to the next," Weissmann says. "Now we carry memory sticks on airplanes. Our tools have indeed changed over time."

But these new and improved tools haven't altered the constants that truly account for her achievements. Intelligence, imagination, hard work and enthusiasm have been the hallmarks of her success.

Weissmann, who received the 2003 L'Oréal Prize for Women in Science, is one of Latin America's foremost computational physicists. She has applied her skills to such diverse fields as theoretical chemistry, where she examined hydrogen bonds and the structure of liquid water; atomic physics, where she focused on the molecular dynamics of small systems; and solid state physics, where she applied complex computer techniques to explore the structure of materials.

"For some time now," notes Weissmann, "my research has focused on non-periodic solids, disordered materials, and superlattices. More recently, I have studied the diffusion of impurities over surfaces and magnetic metallic wires."

"New high-powered computational tools," explains Weissmann, "mean that time once spent on programming is now available to think about new physics problems and their solutions. We used to write our own computer codes but, due to increasing machine capabilities, codes have become too complicated for scientists to do on their own. As a result, we rely on codes that have been developed by others, such as those devised by Roberto Car and Michele Parrinello, both of whom are well known in the Trieste science community." (see "Models of Behaviour," *News from ICTP*, Autumn 2003, p. 14.)

Like Car and Parrinello, Weissmann is also one of the more illustrious members of ICTP's extended family of scientists. From 1985 to 1995 she was an ICTP Associate. Over the course of her career, she has visited the Miramare campus on numerous occasions with her last visit taking place in 1998 to participate in a workshop focusing on the *ab-initio* method, a computer program that calculates all relevant properties of electrons and atoms in solids.

Mariana Weissmann

"ICTP has played an important role in my career," says Weissmann. "As an ICTP Associate I was able to travel to Europe several times, meet physicists from different places and go to international conferences at a time when the price of an airplane ticket from Argentina to Europe or the United States would have equalled my entire year's salary."

"ICTP," she adds, "has also played an important role in the education of my graduate students who have attended the Centre's spring colleges in condensed matter physics, learning many things we could not teach them in Argentina."

Weissmann acknowledges that the economic crisis that first struck Argentina in 2001 has jolted the entire nation, including its scientific community. It was not the first time that the scientific community in Argentina was dramatically affected by events beyond its control. Indeed economic crises in 1966, 1974 and 1976 had a similar impact.

"Tough times," she notes, "have caused many professors to look for jobs elsewhere." This response, she adds, should come as no surprise. "Many of our scientists are first-generation Argentineans—their parents having migrated here from Europe. Much of their university education has taken place in foreign countries. They are used to moving from one place to another and they adapt easily to new surroundings. Poor pay and inadequate working conditions in Argentina make it difficult for them to develop a close attachment to their jobs at home. So if a better opportunity arises, chances are they will not pass it up."

Weissmann is quick to add that Argentina may be among the best places in the world for women to work—at least when it comes to issues of gender equality and respect. "The problem here is not the status of women but the status of science. Indeed if salaries and working conditions do not improve, it is conceivable that science in Argentina could be completely feminised—much like the field of primary and secondary education."

Weissmann concedes that "as long as foreign countries lure our graduates away with higher salaries and better working conditions, Argentina will continue to export many of its most highly skilled workers without receiving much in return." She observes, however, "that this may not be all bad since it allows talented people to receive a good scientific education here—something that does not happen in many other developing countries."

Another potential benefit is that some scientists may actually return home to pursue their careers, achieving a 'full measure of success' comparable to the one that Weissmann herself has achieved. As her career shows, competitive research and good scientific teaching are possible in a third world country. □

5 - 16 July

Workshop on Theoretical Plasma Physics

12 - 23 July

Workshop on Novel States and Phase Transitions in Highly Correlated Matter

19 - 30 July

Asian/Pacific Regional School on Electronic Structure Methods and their Applications (Beijing, P.R. China)

19 July - 6 August

Summer School and Conference on Dynamical Systems

26 July - 6 August

VII School on Non-Accelerator Astroparticle Physics

9 - 27 August

Targeted Training Activity: Course on Climate Dynamics for University Lecturers

9 - 27 August

Advanced School and Conference on Non-Commutative Geometry

30 August - 22 September

College on Medical Physics

6 - 10 September

School and Conference on Fundamental Aspects of Complexity

15 - 18 September

Conference on Fundamental Symmetries and Fundamental Constants

23 - 25 September

Workshop on Medical Applications of Synchrotron Radiation

27 September - 8 October

Fourth Antonio Borsellino College on Neurophysics



Throughout the year, the most up-to-date information on ICTP activities may be found on the World Wide Web and via e-mail. Here's how to find out what's going on.

ON THE WORLD WIDE WEB (WWW)

Our address is <http://www.ictp.trieste.it/>

The site includes detailed information on our research groups and activities, and a listing of our preprints, awards and job opportunities.

ON E-MAIL

(1) For Yearly Calendar of Scientific Activities

Create a new e-mail message and type

To: smr@ictp.trieste.it

Subject: get calendar 2005

Leave the body of the message blank. Send it.

Your e-mail will generate an automatic reply from the ICTP server containing the most updated version of the yearly Calendar.

(2) For Information on a Specific ICTP Activity

Each activity in the Calendar has its own 'smr' code number, which is located on the last line of each activity description. The 'smr' number will enable you to obtain more information—if available—on those activities you are interested in. To receive this more detailed information, create a new e-mail message and type the smr code number that you found on the calendar:

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Under the e-mail's subject, type

Subject: get index

Leave the body of the message blank and send it.

You will receive automatic reply messages containing all documentation available on that particular activity.

(3) For Information on All ICTP Activities

A free online service for the dissemination of information on all ICTP activities, programmes and related announcements is available via e-mail. To subscribe, create a new e-mail message and type:

To: courier-request@ictp.trieste.it

Leave the subject line empty.

In the body of the message type

subscribe

and your e-mail address. Send the message.

Any comments or suggestions on this service are most welcome. Please address them to pub_off@ictp.trieste.it.

NEWS from ICTP

The Abdus Salam International Centre for Theoretical Physics (ICTP) is administered by two United Nations Agencies—the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Atomic Energy Agency (IAEA)—under an agreement with the Government of Italy. Katepalli R. Sreenivasan serves as the Centre's director.

News from ICTP is a quarterly publication designed to keep scientists and staff informed on past and future activities at ICTP and initiatives in their home countries. The text may be reproduced freely with due credit to the source.

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