


Immagini di eventi al Polo Museale.

IL POLO MUSEALE DELLA SAPIENZA

1 Identità

Il Polo Museale della Sapienza

- è un insieme di opportunità culturali, scientifiche e tecnologiche; un parco di strutture museali e relativi spazi organizzati accomunate dall'appartenenza allo stesso megaAteneo, dalla vicinanza geografica, dai comuni interessi, costituite in sistema, teso a sviluppare il senso dei luoghi e a valorizzare l'identità delle comunità umanistico-scientifiche della Sapienza;
- documenta e conserva le testimonianze dei grandi eventi della "storia delle esperienze" scientifiche didattiche, formative, professionali maturate – nei 710 anni di vita – nei luoghi della Sapienza in sinergia con il territorio circostante e svolte sotto lo stimolo delle scuole di ricerca e di cultura che hanno dato lustro al più grande Ateneo d'Europa.
- è un grande laboratorio didattico e culturale, un insieme di luoghi del sapere, della storia delle tradizioni, propizi per rintracciare l'origine delle moderne esperienze professionali, nei contenuti preziosi di archivi, raccolte, strumentazioni.

2 Struttura

Il Polo Museale della Sapienza è strutturato in 5 aree ciascuna costituita da musei per un totale di 20:

- archeologica (antichità etrusche e italiane, arte classica, origini, vicino oriente)
- arte contemporanea (museo-laboratorio di arte contemporanea)
- medica (storia della medicina, anatomia patologica)
- scientifico-tecnologica (chimica, fisica, idraulica, merceologia, arte e giacimenti minerari, matematica)
- naturalistica (mineralogia, geologia, paleontologia, anatomia comparata, antropologia, zoologia, orto botanico, erbario).

3 Visione

L'orientamento strategico

- Il Polo Museale della Sapienza opera per la condivisione e la razionalizzazione delle risorse e per giungere a specifiche intese volte alla realizzazione di forme coordinate di gestione, offerta, e promozione di funzioni e di servizi culturali.
- Il Polo attiva il coordinamento degli interventi di didattica museale che coprono tutte le tipologie museali presenti nel sistema, anche attraverso la formazione degli operatori museali e lo scambio da un lato di esperienze e materiali e dall'altro di studenti a livello coordinato: promuove iniziative ed eventi culturali presso le comunità universitarie e territoriali a supporto ed integrazione delle attività dei singoli complessi museali per incrementarne la conoscenza e la capacità propositiva, e radicarne il ruolo sociale nella conoscenza socio-territoriale. Dal punto di vista organizzativo il Polo coordina la fruibilità dei musei, la ripartizione delle risorse, la richiesta di finanziamenti ad Enti ed Istituzioni, la risposta a bandi per progetti culturali e di promozione turistica, la partecipazione ad iniziative di coordinamento e consulenza promosse dal sistema universitario italiano.

4 Gli obiettivi

- Costruire itinerari ideali ed articolati che colleghino le multiformi espressioni della memoria storica e della ricerca de La Sapienza e che corrono non solo attraverso e all'interno dei Musei, ma anche verso il territorio.
- Assicurare una migliore visibilità dei musei anche al fine di adeguarli alle esperienze e domanda/offerta internazionali.
- Armonizzare la gestione delle strutture museali equilibrandone i contenuti impiantistici, scientifici, tecnologici e culturali in modo da rendere omogenea l'offerta rispetto alle varie aree.
- Ottimizzare l'uso delle risorse disponibili, stabilendo priorità, emergenze ed urgenze e procedure per rispettarle.

5 Il futuro

I progetti

Il Polo Museale della Sapienza si basa su un "sistema informatizzato unitario" per l'intero Polo unificando le procedure informatiche di catalogazione dei beni materiali ed immateriali posseduti dalle singole strutture museali, anche in relazione con altri progetti informatici e culturali de La Sapienza.

Il Polo Museale della Sapienza realizza specifici "percorsi didattico-museali" per singole aree tematiche anche in sinergia con enti locali (Ufficio Scolastico Regionale) ed istituzioni centrali (MIUR) ed attiva un articolato spettro di relazioni con quotidiani, organi di informazione telematica, Aziende di Promozione Turistica, Tour Operators, al fine di diffondere le informazioni indispensabili per la conoscenza e la frequentazione dei musei del Polo, ed accrescerne il richiamo, soprattutto sui più giovani.

Il Polo Museale della Sapienza promuove una gamma di servizi nelle singole strutture museali, compatibile con le risorse ed il personale disponibile (quali aree attrezzate per "navette", reception (accoglienza), ascolto informatico (supporto audiologico con cuffiette), spazi per la didattica e la divulgazione scientifica frontale, esperienze in vivo/dimostrazioni) ed opera attraverso un "sistema di comunicazione telematica" strutturato su organico sito web per l'intero Polo, prodotti culturali e bollettini di informazione online, newsletter, punti video collocati nelle strutture museali del Polo.

6 Conclusioni

Passando da un'articolazione – quella del passato – dei Musei di Ateneo come strutture soltanto riferite ai dipartimenti di appartenenza ad un modello integrato si è voluto accrescere la qualità e soprattutto la ricchezza dell'offerta culturale, anche in relazione a possibili forme di outsourcing da attività a sostegno del turismo e della richiesta culturale. Al tempo stesso si è inteso dotare l'Ateneo nelle sue tre componenti, docenti, amministrativi e tecnici, studenti, di un vero e proprio sistema scientifico basato sulla storia ed evoluzione delle discipline, sulla disponibilità di testimonianze e reperti, sull'apprendimento *in vivo*.

Luigi Campanella,
Sapienza, Università di Roma
Delegato del Rettore per il Polo Museale

ETTORE MAJORANA FOUNDATION AND CENTRE FOR SCIENTIFIC CULTURE

TO PAY A PERMANENT TRIBUTE TO GALILEO GALILEI, FOUNDER OF MODERN SCIENCE AND TO ENRICO FERMI, "THE ITALIAN NAVIGATOR", FATHER OF THE WEAK FORCES

INTERNATIONAL SCHOOL OF SUBNUCLEAR PHYSICS 2011

SEARCHING FOR THE UNEXPECTED AT LHC AND STATUS OF OUR KNOWLEDGE

49th Course, Erice, Italy, 24 June - 3 July 2011

50th Anniversary Celebrations of the School 2011 - 2012 - 2013

This Course will be the first of the three devoted to the celebrations of the 50th Anniversary of the Subnuclear Physics School which was started in 1961 by Antonino Zichichi with John Bell at CERN and formally established in 1962 by Bell, Blackett, Weisskopf, Rabi and Zichichi in Geneva (CERN); the first course being at Erice in 1963. This is why the celebrations will last three years.

The EMFCSC has decided to give special funds for the three years celebrations of the 50th Anniversary. These funds will be devoted each year to the selection of 50 excellent fellows by the board of Invited Scientists and Lecturers.

The lectures will be, as usual, fully devoted to the latest and most significant achievements in theoretical and in experimental physics. In fact during the last half century the School has been involved in all crucial steps of our Physics. Few examples: SU(3) flavour and SU(6) [with SU(2)-spin coupled with SU(3) flavour] dismantled by the "No-Go-Theorem", the battle between S-Matrix and Field Theory, the Universality of the weak forces [started with the β-parameter and the non existence of the "flavour changing-neutral currents" solved by the existence of "charm"], the experimental search for the 3rd lepton in the early sixties before the discovery of CP breaking, the birth of the Electroweak Unification and the SSB mechanism, the discovery of the negative sign of the β-function and of asymptotic freedom, the triumph of non Abelian field theories (QCD and QFD) with all consequences (including Instantons), the discovery of Supersymmetry (many years – and not few days – after the "No-Go-Theorem"). Now the focus is on RQST (Relativistic Quantum String Theory) and LHC, including totally unexpected events.

In 2011 there will be a special session of the School fully devoted to the celebration of the discovery of the negative sign of the β-function and of asymptotic freedom; in 2012 QCD and in 2013 SSB plus Instantons will be celebrated.

The application-form and the reference letter must be sent, by e-mail or ordinary mail, as soon as possible and at the very latest before april 10, 2011, to the following address:

Professor Antonino ZICHICHI
CERN
CH - 1211 GENEVA 23, Switzerland
e-mail: issp2011@emfcsc.infn.it

G. 'TOOFT - A. ZICHICHI
CO-DIRECTORS OF THE COURSE

A. ZICHICHI
DIRECTORS OF THE SCHOOL

ERICE PRIZE: "SCIENCE FOR PEACE"

Werner Arber, Yuan T. Lee, Gerardus 't Hooft and Samuel C. C. Ting are the 2010 laureates of the Science for Peace - Erice - Prize.

On the occasion of the 25th anniversary of the Ettore Majorana Foundation and Centre for Scientific Culture (EMFCSC) the World Federation of Scientists (WFS) proposed to establish a "Science for Peace Prize", which was voted unanimously by the Sicilian Parliament and implemented by the Sicilian Government. The members of the World Federation of Scientists (WFS) elect laureates among world leaders in science and scientific culture to be awarded the prestigious prize. The impressive list of eminent winners of the prize can be found on the home page below of the Ettore Majorana Foundation and Centre for Scientific Culture (EMFCSC) in Erice (Sicily) `http://www.ccsem.infn.it/index.html`

The history of the World Federation of Scientists and the Erice Prize – Science for Peace

On the WEB home page of the World Federation of Scientists one learns, that the "WFS was founded in Erice, Sicily, in 1973, by a group of eminent scientists led by Isidor Isaac Rabi and Antonino Zichichi. The WFS is a free association, which has grown to include more than 10000 scientists drawn from 110 countries. All members share the same aims and ideals and contribute voluntarily to uphold the Federation's Principles. The Federation promotes international collaboration in science and technology between scientists and researchers from all parts of the world - North, South, East and West".

For more information about the WFS, see `www.federationofscientists.org/WFSHist.asp`

The 2010 Prize award

Voted by the Members of the World Federation of Scientists during the year 2010, the prestigious "Ettore Majorana - Erice - Science for Peace Prize 2010" has been awarded to four eminent scientists, namely to Werner Arber, Yuan T. Lee, Gerardus 't Hooft and Samuel C. C. Ting. A prize award ceremony was held on 29 January 2011, at the seat of the Pontifical Academy of Sciences, in the Vatican (Rome) on invitation by Mgr Professor Marcello Sánchez Sorondo, Chancellor, Pontifical Academy of Sciences and Professor Dr. Antonino Zichichi, President, World Federation of Scientists.

Common to all laureates, whether microbiologist and geneticist (Werner Arber, Nobel Prize 1978) or chemist (Yuan T. Lee, Nobel Prize 1986), theoretical physicist (Gerardus 't Hooft, Nobel Prize 1999) or experimental physicists (Samuel C. C. Ting, Nobel Prize 1976), is their engagement to promote worldwide the "Spirit of Erice": Science without Secrets or Frontiers, as laid down in the Erice Statement (`http://www.federationofscientists.org/WfsErice.asp`) on Science for Peace, written in 1982 by Paul Dirac, Pyotr Kapitza and Antonino Zichichi, the current president of the EMFCSC.

The Erice Prize award statements, read out at the prize award ceremony by Professor A. Zichichi, are referring to the respective research topics and achievements of the prize winners.

Werner Arber for "his fundamental contributions to unravel the mechanisms which promote and limit the spontaneous variation of genetic information in micro-organisms; for his theory of molecular evolution which puts on a scientific basis the fact that Nature cares actively for biological evolution, thus allowing us to understand and evaluate the risks of genetic engineering";

Yuan T. Lee for "his discoveries to determine the structure and chemical behavior of highly reactive polyatomic radicals and unusual transients species; for his achievements in the basic chemical reactions and primary photo-dissociation processes; for his studies to modify chemical reactivity; for his contributions to the development of methods to detect, directly, the transients intermediates that are critical in combustion and atmospheric processes";

Gerardus 't Hooft for "his discovery of the negative sign of the β-function in the most critical period of crisis for the Relativistic Quantum Field Theory which he brought to new life with his fundamental contributions to understand the Renormalization processes, thus paving the road to Quantum Gravity, Supergravity, Superstring Theories including the nature of the Black Holes";

Samuel C. C. Ting for "his discovery of the J-particle, the first 'narrow' state in Subnuclear Physics, which gave rise to the so-called "November Revolution", where from a great step forward came in the understanding of the Logic of Nature, whose most recent frontier is the search for Antimatter in Space".

During the ceremony each laureate was invited to present his current work projects, followed by discussions with an audience of members of the World Federation of Scientists. The ceremony continued with a visit to the Galileo Galilei exhibition inside the unique renaissance church "Santa Maria degli Angeli" and ended with a midnight concert in the church.

Horst Wenninger
CERN, Geneva

Antonino Zichichi with:

Werner Arber.

Yuan T. Lee.

Gerardus 't Hooft.

Samuel C. C. Ting.

WOMEN IN PHYSICS IN CHINA – PAST AND PRESENT

As is generally recognized, over the past decades China has made tremendous progress in all areas, especially economically, with a GDP (Great Domestic Product) now ranking second in the world. However, the per capita income is still relatively low and many pressing issues need to be solved, including many that were nonexistent before and have newly cropped up. Apart from the more obvious energy resources and environmental pollution problems, there are also subtle socio-economic issues. Generally, economic prosperity allows a country to promote science and education, which acts as a catalyst in the spread of more liberal attitudes and policies. In China this is also true, but it takes time to recover from the vicissitudes of the last century, and unfortunately some old feudal practices have resurfaced.

In the early 1950's as the country started rebuilding its battered economy, to make up for the lack of labour there was a mass entry of women into the workforce, making up almost 50%. In fact, it was considered reprehensible for a woman to stay at home and not be contributing to the nation's needs. Men and women were decreed by law to have equal rights. Actually, women enjoyed special benefits, including maternity leave and earlier retirement for manual workers, with a pension at age 50 compared to 55 for men. During this period the universities were restructured, with stronger emphasis on science and technology in an ambitious plan to train new generations of scientists and engineers. Enrollment of women in schools and colleges increased at an unprecedented rate, especially in the sciences, and in certain fields such as medicine there were more women than men. All graduates were guaranteed jobs with equal pay for men and women alike, while the retirement age for those in academia could be extended to 65 for senior ranked men and women alike, if necessary. Equality between the genders was an accepted fact because of government policies that were strictly enforced.

Then, during the "cultural revolution", ideology went to the extreme, and students and professors were sent to be "re-educated" by the workers and peasants, who became the "upper" class. In order to prove they were the most revolutionary and on a par with men, women actually contended for the heaviest tasks in agriculture and industry, even going down pit shafts in coal mines. Austerity was revered; pretty clothes and make-up were thrown in the dustbin. There was nothing men could do that women could not.

The cultural revolution finally terminated, and the reforms that started in the late 1970's have continued to this day. In the 1990's, renewed awareness of the importance of science and technology led to significant rises in the salaries of scientists, together with a steady increase in research funding that has continued to this day. After centuries of stagnation, science and technology is beginning to blossom again in China.

But even in the darkest period of the early 20th century when the country was suffering foreign invasion and universities were disrupted by the wars, physics education and research managed to survive through the efforts of dedicated pioneers, though many students had to continue their education abroad. It was also a time of women's emancipation, and in 1931 the first female Chinese physicist Gu Jin-Hui (Ku Z. W.) obtained her PhD from Michigan University, returning the same year to teach in Nankai University. The Chinese Physical Society was established in 1932. Another young lady, Chien-Shiung Wu, was later to become the first female president of the American Physical Society. It is interesting to look at the ratio of female undergraduates in the Physics Department of Peking University from 1938–2000, as shown in table 1. The numbers vary widely, reflecting the turmoil of the times: during World War II many universities evacuated south to form

Years	No. of Women	Total No.	% of Total	Note
1916-26	0	87	0	Graduation data
1927-37	0	133	0	Graduation data
1938-46	5	69	7.2	Combined into Southwestern Associate Univ
1947-49	6	26	23.1	Graduation data
1950-58	109	861	13.6	Graduation data
1959-70	403	1999	20.2	Graduation data
1975-81	274	694	39.5	Graduation data
1977-90	320	1980	15.9	Enrollment data
1991-99	32	711	4.5	Graduation data
1996-00	485	64	13.2	Enrollment data

Tab. 1 Female undergraduate enrollment in the physics department of Peking University.

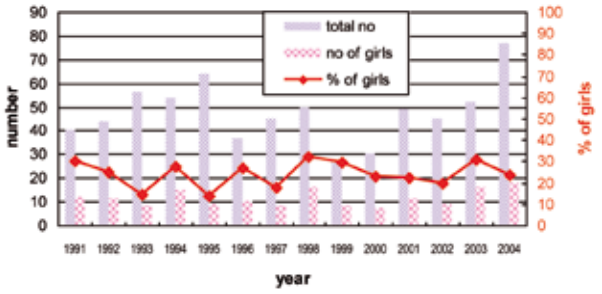

Fig. 1 Number of Peking University High School graduates who chose physics as their major in university.

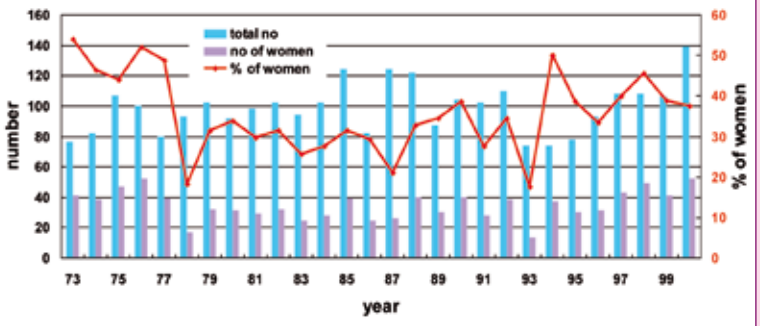

Fig. 2 Physics undergraduate enrollment in Beijing Normal University.

temporary collective universities; during the cultural revolution enrollment ceased until 1972 when students were recruited from young workers and peasants based on recommendation – girls were more disciplined than boys and so were more likely to be nominated by the authorities, which explains the higher proportion; national college entrance examinations resumed in 1977.

Since China's opening up to the world, women in physics together with their male colleagues started to enjoy a much better material environment, with new classrooms, offices, and labs, more money to buy equipment and attend conferences, access to the Internet, etc. However, as is often unavoidable, the good comes with the bad. Newly found affluence has led to a change in the sense of values, which has switched back and forth many times. Whereas before, young people were guaranteed jobs and security, and were willing to undergo all hardships with the ideal of building a modern socialist China, now many are in a dilemma as they are confronted by a whole spectrum of possible careers, from being an astronaut to a popstar. Physics is still highly regarded, and physics departments have little difficulty in enrolling the best students. In senior high school the students are divided into science and arts classes, with the former greatly exceeding the latter. All those choosing science have to learn physics, so the same number of girls as boys learn physics. However, as the figures from Peking University High School show (see fig. 1), the number of girls who go on to take physics as their major in university is only one quarter of the total, and this ratio has been fairly constant over the years. This is the first hole in the "leaky pipeline".

Actually, in secondary schools about 70% of the physics staff are women, mostly coming from teachers' colleges and normal universities where the ratio of female physics majors is more than 30%, compared with 15–25% for other institutions of higher education. Figures 2 and 3 show, respectively, the undergraduate enrollment in the physics departments of Beijing Normal University and Tsinghua University (regarded as the MIT of China). However, paradoxically and quite the opposite to other countries, the ratio of women studying for a PhD in physics is actually higher! Does this mean that women have become more attracted by physics after the college? It would be great if this were true, but unfortunately this is not the main reason. In fact, it reflects an ominous trend. Due to a major shift in government policy, college graduates now have to seek employment themselves. Although by law men and women are supposed to share equal rights including the right to work, sex discrimination in employment is becoming more and more blatant, with many companies and institutions openly stating "only men need apply," or requiring women to accept contracts with outrageous demands such as pledging not to give birth for three years. Thus, women feel compelled to seek higher degrees to raise their competitiveness in the job market. Ironically, in the graduate entrance exams, male candidates often score lower grades resulting in lower admission rates, to the extent that some professors are complaining they have too many female students! Figure 4 shows the change in composition of the graduate enrollment of the Institute of Physics, Chinese Academy of Sciences (a research organization with no undergraduate education). It is evident that the ratio of women students has risen considerably.

On the other hand, it is alarming that the number of permanent female research scientists in our institute has dropped, especially those in higher ranks (see fig. 5), being due in part to the retirement of the "old guard" which has not been replenished, and to the return of outstanding young scholars from abroad, who are given full professorial

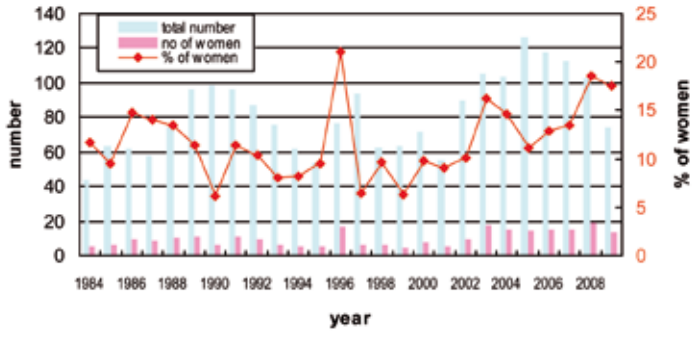

Fig. 3 Physics undergraduate enrollment in the physics department of Tsinghua University.

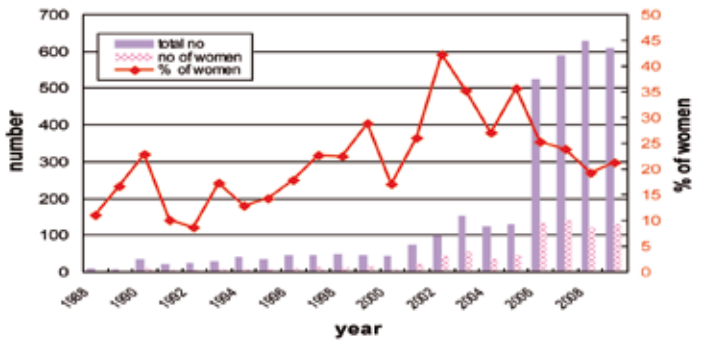

Fig. 4 PhD students in the Institute of Physics, Chinese Academy of Sciences.

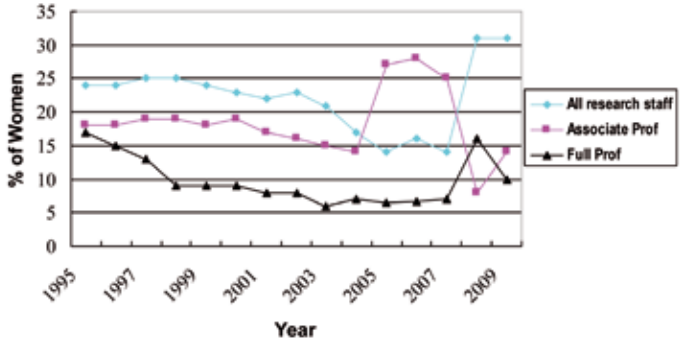

Fig. 5 Percentage of female research staff in the Institute of Physics, Chinese Academy of Sciences.

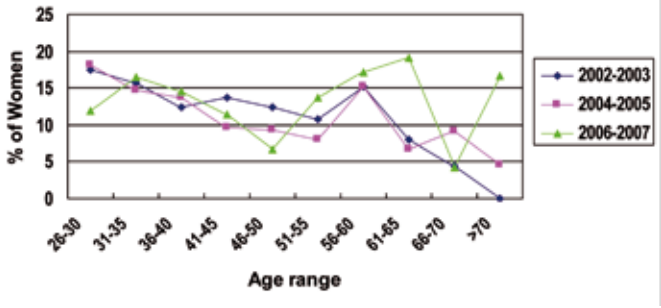

Fig. 6 Percentage of women awarded ordinary NNSFC grants in physics ranked by age (averaged over every two years from 2002 to 2007).

positions and who are predominantly male. It seems strange that there is a sudden peak in the ratio of associate professors, but this was due to the relative decrease in the number of male associate professors after they were promoted to full professorship. Another interesting point is the increase of female research staff in the last few years, which may be a good indication that there is an increasing number of younger female faculty members being recruited.

Although this is only one case study, it does reflect a general trend, as can be verified by looking at the data of the National Natural Science Foundation (NNSFC) of China. In fig. 6, the older and the younger women physicists are apparently more successful in winning research grants, and this may be related to the fact that their numbers are relatively larger in this age bracket. Why there is a dip for the 40–50 year old generation is somewhat puzzling, but this may be because this is the period when women have the heaviest burden of looking after the household, children, and aged parents. Beyond the age of 65, only academicians are exempt from retirement, and as the number of female academicians is less than 5% the ratio drops steeply. Not illustrated here is the percentage of female principal investigators of major national projects, also less than 5%, and another indication of the leaky pipeline.

Since the establishment of the Working Group on Women in Physics of the Chinese Physical Society (CPS, Beijing) in 2002, we have made considerable efforts to broadcast physics and remedy the leaky pipeline, beginning with the analysis of statistics collected through personal contact with various institutions, as there are no national data available pertaining to physics and gender. On this basis, we decided on short-term and long-term strategies to improve the status of women in physics. To begin with, it was decided to hold a round table meeting to discuss women's issues at our annual CPS meetings, and this has now become a tradition. Every year since 2004 our *Physics* magazine publishes a special March installment with articles on women in physics. The 2005 World Year of Physics was a great opportunity for outreach, and the CPS printed a set of 51 different posters on achievements in physics, including two on outstanding female physicists, Chinese and foreign. To encourage girls to study physics, certain provinces now offer a special girl's prize in their local Physics Olympiads. It is indeed encouraging that in the 2009 International Physics Olympiad the highest overall score was earned by a girl for the first time, Handuo Shi of China, who also garnered the highest experimental score, and of course the best girl's award. All of the five-member team from China won gold medals, including another girl. In 2007 the CPS established the Xie Xi-De Physics Prize, named after an outstanding female physicist and educator (originally known as Hsi-teh Hsieh, 1921-2000) who became the President of Fudan University; this prize is awarded biennially to a woman who has made exceptional contributions in physics research and/or teaching.

Another landmark in the efforts of the Working Group was the approval from our NNSFC, announced just last year, for the extension of the age of women applying for Young Investigator Awards from 35 to 40, as well as for an extension for the date of completion of ongoing grant projects in the event of childbirth. This success was also thanks to the concerted support of all other women in science. The question of research grants specifically for women is currently under debate, as public opinion and funding agencies still need to be convinced that there really is a need. A serious reason now why few women are in top positions is the leak at age 55. The favourable policy of early retirement for manual workers has now been extrapolated illegitimately by most institutions to forced retirement at 55 for all white-collar female employees, including research faculty who have not reached full professor ranking, whereas their male counterparts can retire at 60 (for those who have attained full professorships the age is 65 for both genders). Thus women are simply not given the chance, and this is especially unfair as after 55 women have just been relieved of the duties of looking after children and can devote full-time energy to their pursuits of interest. The real reason behind the abuse of this policy is that institutions wish to open up positions to younger, mostly male recruits.

The elimination of gender discrimination in employment is a problem that is not unique to physics, and needs to be addressed in all fields, amongst all sectors. This is a long-term goal of our working group, and several women's organizations have already been lobbying this issue, but it will probably not be accomplished in the near future as it involves policy at the government level. More needs to be done to attract the attention and support of men, to let them realize that affirmative measures are required to help women overcome the difficulties that men do not encounter. Equity, and not just equality, is what is really needed, and in the long run this will surely benefit humanity and the world in general. As physicists, we should all do our part to enable women to give play to their full potential in contributing to the advancement of science and society.

Ling-An Wu
Chinese Academy of Sciences, Beijing

Ling-An Wu

Ling-An Wu è Professore dell'Istituto di Fisica dell'Accademia delle Scienze Cinese. Oltre ad essere uno scenziato di chiara fama nel campo dell'ottica quantistica e non lineare, ha ricevuto diversi premi dall'Università del Texas e dall'Accademia delle Scienze Cinese, oltre al National March 8th Red Banner Award nel 2004. Inoltre è membro attivo, con diverse cariche, in molte società di fisica: CPS, IUPAP, OSA (Optical Society of America) e IOP, di cui è anche fellow dal 2002.

"TWO-IN-ONE" COULD BE BENEFICIAL FOR THE EUROPEAN RESEARCH INFRASTRUCTURES

In view of the acknowledged discussion on the value of diversity, the participation of women in science and research, as well as in the research policy debate, has to be seen as essential to achieve excellence and innovation in research and to ensure a sustainable scientific quality of research, which will require 700 000 additional researchers to carry out work in the coming decade. Using the full potential and scientific excellence of women scientists is also a key to harmonisation of the European research area and preventing Europe from brain drain.

The mobility of researchers is essential to successfully ensure the full implementation of the European Research Area (ERA) and to increase knowledge transfer between research infrastructures. While moving from one place to another, it becomes a great challenge for researchers to simultaneously meet the requirements of a family life and a professional career. Such an exercise could be detrimental to the promotion of women scientists. What kind of measures might help in reducing this thread? This column presents a concept "two-in-one", which developed in my mind while I was working on the list of requirements to be satisfied by a research infrastructure in order to be chosen as a host of ESFRI selected infrastructures. ESFRI stands for the European Strategy Forum on Research Infrastructures (`http://ec.europa.eu/research/infrastructures/index_en.cfm?pg=esfri`).

By allocating a substantial budget for research infrastructures, the European Governments advised by the ESFRI, contribute to the long-term direction of the European research and the work conditions of future generations of researchers. ESFRI, therefore, has a privileged position to influence long-term and sustainable changes in that respect.

The "two-in-one" means that the Research Infrastructures Executives offer a special work-package – two jobs for a family of researchers at one and the same research infrastructure.

The author is aware of the difficulties which may arise in implementing such a package in practice. A step that might facilitate the process would be a joint project of several relevant bodies which aim to find complementary sources. A team of scientists from the European Physical Society and the European Platform of Women Scientists could assist ESFRI working groups in searching complementarities.

What should be the ESFRI's role?

ESFRI can actively contribute to the general European effort to promote the participation of highly qualified women scientists by including women scientists and their ideas, needs and aspirations in the initial design of European Research Infrastructures (ERI) and in the choice of suitable sites. Both will affect the composition of ERI future workforce and research body and hence the scientific excellence and innovativeness of results.

Against this background, criteria and measures to ensure a diverse future workforce and research body, the list of requirements to become a host of a research infrastructure should situate European Research Infrastructures in their social context and include human-resources–related issues and pay particular attention to the attraction and promotion of excellent women scientists. Also, research infrastructures have to be attractive to a mobile workforce and research body that temporarily make use of the infrastructure and would be attracted by measures that make their stay easy to organize. Measures like

- design sustainable infrastructures to support researchers with double career needs;
- offer on-site caring/nursing facilities, living quarters for researchers with good access to schools and kindergartens, good and safe transportation systems to the areas where researchers live;

although expensive will benefit the society in the future. Candidates for hosting a research infrastructure could be asked to elaborate an action plan indicating all kinds of actions and activities that will be developed to promote equal opportunities and gender equality among the workforce and the research body.

The European platform of women scientists – the Board of Administration, the Coordinator and the staff (BA members: first raw, left to right: Ana Proykova, Isa Schön, Claudine Hermann, Adelheid Ehmke, Hagit Messer-Yaron).

Let the European Platform of Women Scientists be involved

The European Platform of Women Scientists (EPWS) has been created in 2005 as a FP6-funded project to encourage women scientists to publicly voice their interests, their suggestions and their worries about the current paths taken and to make them aware of the role they can actively play in the research policy debate and in the shaping of research policy in Europe (`http://www.epws.org/index.php?option=com_content&task=view&id=56&Itemid=4579`). The Founding Board of the EPWS - Prof. Adelheid Ehmke (Luxemburg, President 2006–2009), Dr. Brigitte Mühlenbruch (Germany, President 2005–2006; President 2009–at present), Prof. Claudine Hermann (France, Vice-President 2009–at present; physicist), Prof. Mineke Bosch (Netherlands), Prof. Gillian Gehring (United Kingdom, physicist), Dr.

Liisa Husu (Finland), Prof. Hagit Messer-Yaron (Israel), Prof. Ana Proykova (Bulgaria, physicist), Prof. Flavia Zucco (Italy), Dr. Isa Schön (Belgium), Mag.a Gabriele Gerhardter, Begoña Sanchez (Spain) – covered various professional expertise and cultural diversity.

During its project lifetime, the Platform was successful in establishing networks for discussion to actively involve women scientists in the setting of the European research agenda. One topic, discussed in depth, has been the mobility of researchers. It has been pointed out the possible incompatibility between mobility and the aim to increase the number of women in science – any mobility that would be mandatory or a pre-condition to career advancement would strongly enhance that risk. Instead, the discussants urged for adoption of mobility policies, measures and procedures that support the mobility of researchers with caring responsibilities and take into consideration gender perspectives.

The European Physical Society is a natural partner

The EPS provides a European forum for physicists representing national, scientific, and topical interests. Together, they elaborate the strategic vision for the EPS, and for the European physics community (`http://www.eps.org/about-us`).

These three bodies could elaborate action plans including firstly, an analysis of the current situation relative to participation of women in research, and to integration of the gender and family dimension in the research area in which the application is being submitted; secondly, based on this analysis, measures for promoting the new package (two-in-one) should be proposed. Some measures are not expensive at all – flexibility in working hours, options for part-time work, working from home, scheduling of meetings in core hours where schools and kindergartens are open. Others need some investments – provision of a childcare for employees – but these pay back fast.

The decisive aspect is not the outset situation, *i.e.* the participation of women in the research area in question, but the progress to be achieved in the framework of the research infrastructure.

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Ana Proykova

Ana Proykova is a Full Professor in Physics at the University of Sofia (computational theoretical physics – phase transformations and self-organization of atomic and molecular clusters; defective carbon nanotubes – interaction between defects and its role in adsorption; potential energy surface – topography, symmetry and stability of the systems). She works at large research infrastructures – Joint Institute for Nuclear Research (Dubna), Paul Scherrer Institute (PSI). Currently, she is a national delegate to the ESFRI, a member of the Executive Council of the EPS and the President of the National Council on Nanotechnology.

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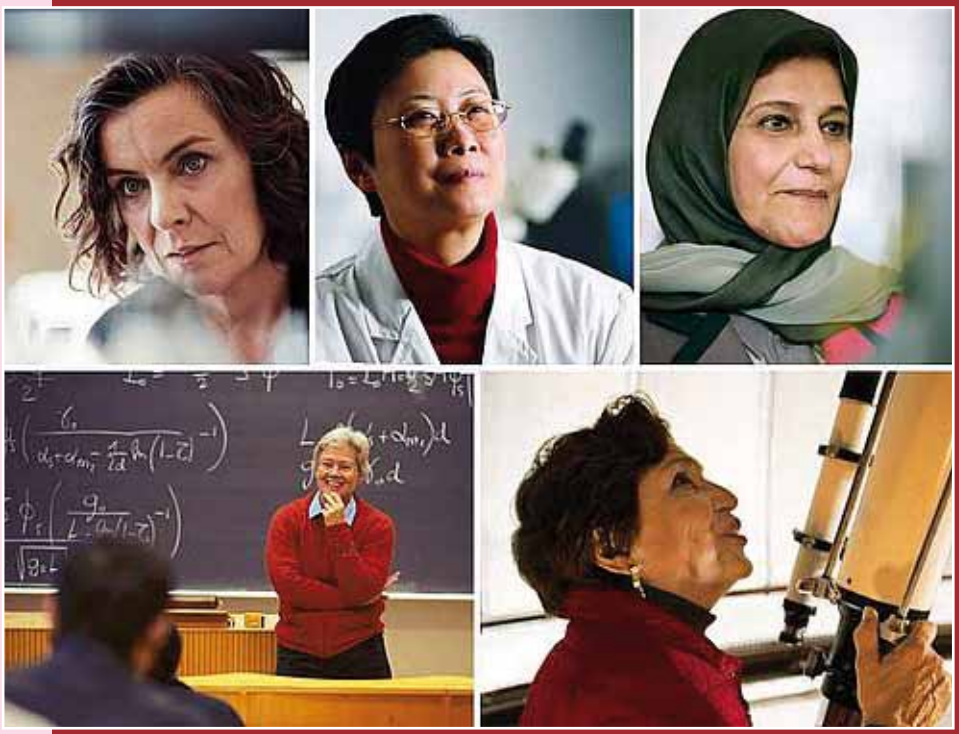

© V. Durruty & P. Guedj for the L'Oréal Corporation Foundation - Prof. Jillian Banfield, Prof. Vivian Wing-Wah YAM, Prof. Faiza Al-Kharafi, Prof. Anne L'Huillier, Prof. Silvia Torres-Peimbert (dall'alto al basso, da sinistra a destra).

Cinque scienziate eccellenti – una per continente – hanno ricevuto il Premio L'Oréal-UNESCO 2011, ambito riconoscimento per le donne nella scienza. Le premiate di questa 13ª edizione sono:

- Per l'Africa e gli Stati Arabi:
  Faiza Al-Kharafi, Professore di Chimica, Università del Kuwait, Safat, Kuwait
- Per l'Asia/Oceania:
  Vivian Wing-Wah YAM, Professore di Chimica e Energetica, Università di Hong Kong, Cina
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- Per l'America del Nord:
  Jillian Banfield, Professore di Scienza della Terra e dei Pianeti, Scienze Ambientali e Ingegneria e Scienza dei Materiali, Università della California, Berkeley, CA, USA