

International Workshop on
Asian Networking of Women in Science and Technology
Nagoya, September 29, 2006

Women in Physics in China

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Outline

- Background of IUPAP Working Group on Women in Physics
- Women in physics in mainland China
- Outstanding Chinese women physicists
- Disturbing factors
- Looking ahead

IUPAP Working Group on Women in Physics

- In 1980s APS study revealed:
 - No of physics majors going down
 - Future faces serious lack of physicists
 - Should make better use of women resources
- 1999 IUPAP approved setting up WGWIP
- 2000/6 WGWIP first meeting, Washington
 - 11 representatives (2 men) from 10 countries

WGWIP in White House, June 2002



Photo taken by Hidetoshi Fukuyama

WGWIP Conferences

2002/3 International Conference on Women in Physics (Paris)

65 countries and regions, >300 representatives (10% men)

2005/5 2nd International Conference on Women in Physics (Rio de Janeiro)

42 countries and regions, >140 representatives (<10% men)

Discussion topics

1. Balancing Family and Career
2. Launching a Successful Physics Career
3. Attracting Girls into Physics
4. Getting Women into the Physics Power Structure Nationally and Internationally
5. Improving the Institutional Structure and Climate for Women in Physics
6. Learning from Regional Differences:

WGWIP activities

- Conference resolutions endorsed by IUPAP
- Make physics societies realize there *is* a problem
- Surveys conducted, identify problems
- Networks established
- IUPAP travel grants for 3rd world women
 - 12 per year, already 5 years



Dec 2005 IUPAP President's letter

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December 5, 2005

Dear IUPAP Liaison Committee Contacts:

In 1999 IUPAP established a Working Group on Women in Physics, charged "to understand why, and to develop strategies for increasing women's participation in and impact on the field". Their activities led to the first IUPAP International Conference on Women in Physics in Paris in 2002. This was followed by a second conference in Rio in 2005. The outcome from this first phase of the Working Group is a set of resolutions, which were approved by the General Assembly of IUPAP in Cape Town in October 2005.

The first of these resolutions reads: "IUPAP requests all IUPAP Liaison Committees to work toward catalyzing women's full participation in physics." I particularly ask you to keep this resolution in mind in all your dealings with physicists and IUPAP. In my view this is not an onerous request; it simply demands being sensitive, and aware of talented women physicists, and paying attention to recognition of their talents. This is especially true when composing proposed slates for IUPAP officers and Commissions. Already the Executive Council pays a lot of attention to achieving gender balance in the Commissions. Also in considering requests for conference grants, we do not award funds if women are not represented on the Organizing Committee. **Always their presence will hopefully lead to an increased number of women physicist as invited speakers.**

I feel that with constant vigilance we can significantly enhance the visibility and recognition of women physicists. There will be a ripple effect throughout our subject, which in time will lead to an infusion of new talent from a group, whom so far, we have not encouraged well.

I thank you for your attention.

Best regards,

Alan Ashbury
2006 IUPAP President

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Women in Physics in Asia

2002/9 CPS establishes GWIP

2004/10 AAPPS hold 9th APAC Hanoi
Round table discussion on WIP
>60 participants, 50% men

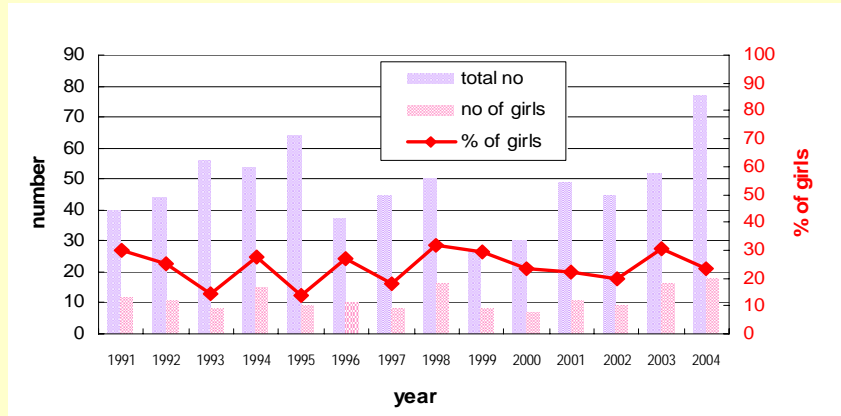
2005/11 Pohang APCTP International Workshop on Asian
Women in Physics
6 countries and regions, >40 attendees
Decision to set up AAPPS GWIP, approved by
AAPPS in 2006

China Mainland

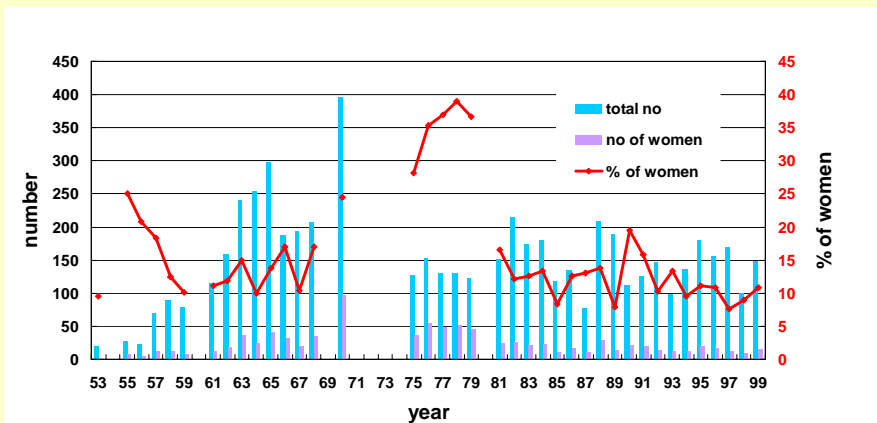
- One of the fastest developing economies in the world
- Tremendous new opportunities for women in all fields including physics
- Women face new problems and challenges due to rapid changes in social values?

Is there a problem?
Are men and women “still equal”?

1991–2004 Peking Univ Senior High School No. of Graduates Admitted as Physics Majors

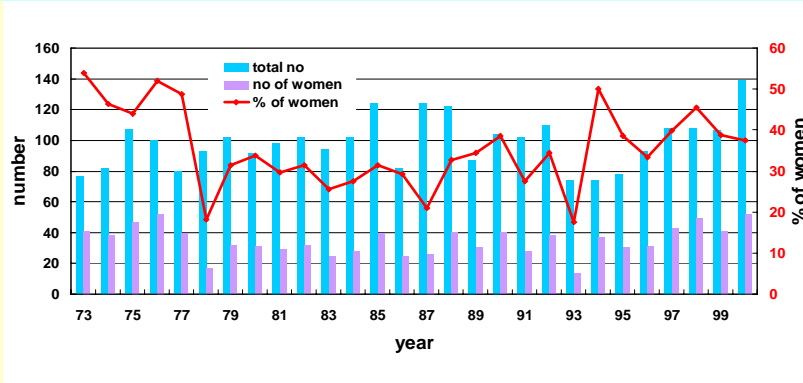


Physics Undergraduate Enrollment in Nanjing University

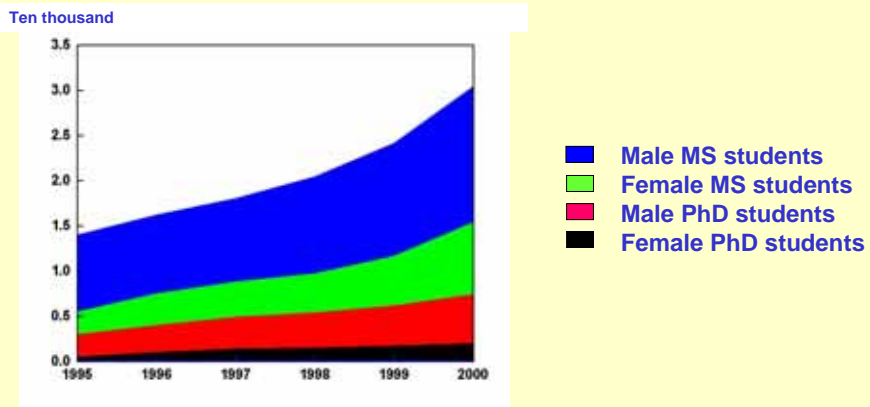


Physics Undergraduate Enrollment in Beijing Normal University

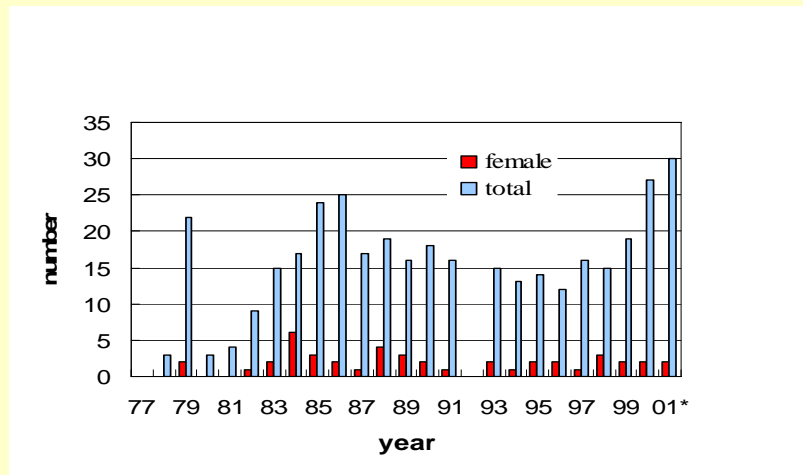
The ratio of female physics undergraduates in normal universities is consistently higher



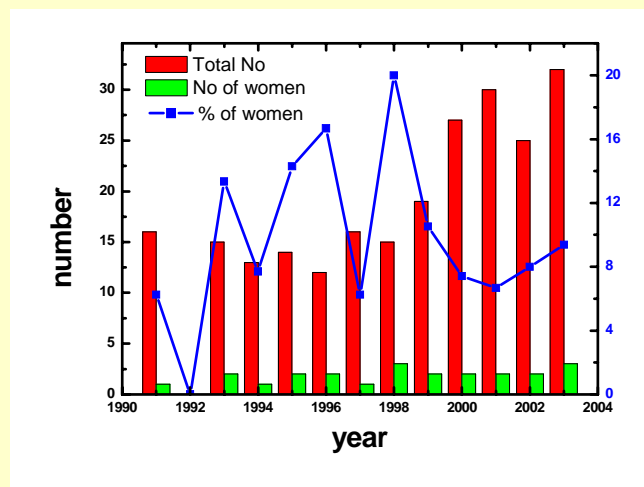
Percentage of Female Graduate Students in All Subjects in Shanghai



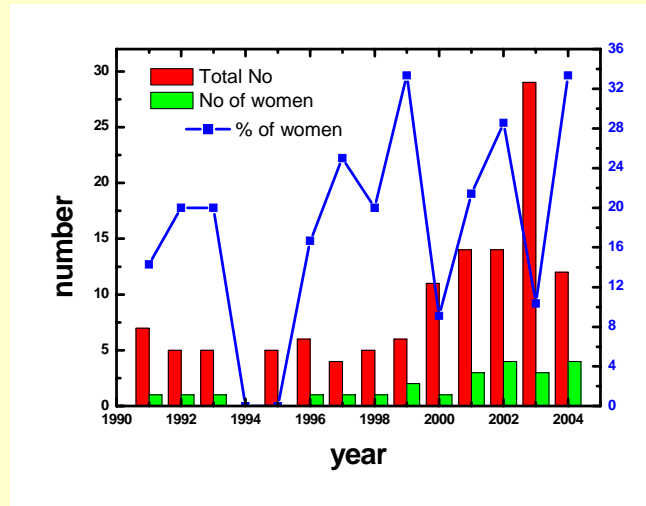
1978–2001 Physics MS Graduate Enrollment in Shanghai Jiaotong (Communications) U.



1991–2004 Physics MS Graduate Enrollment in Shanghai Jiaotong (Communications) U.



1991–2004 Physics PhD Graduate Enrollment in Shanghai Jiaotong Univ



Reasons why female graduate students are increasing

Right reasons ??

- Women realize they have better chances?
- Women score higher in exams?

Wrong reasons ??

- Harder for women to find jobs
- Men score lower in exams

Physics Faculty

Year	Total No. Full Prof	No. Female Full Prof	Total No. Associate Prof	No. Female Assoc Prof	Total No. Lecturers	No. Female Lecturers
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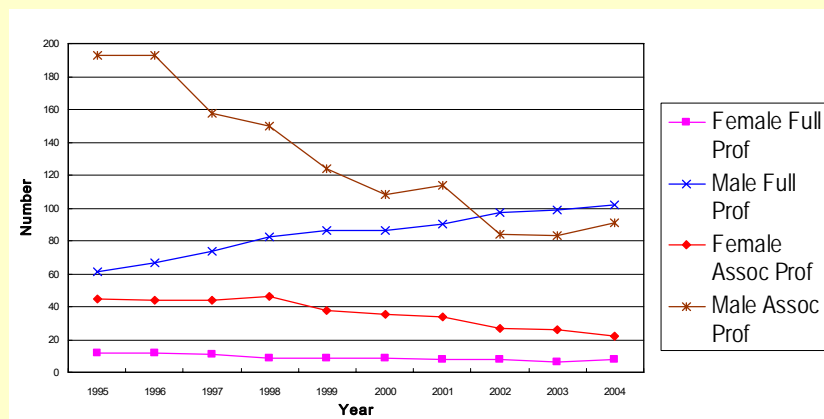
Shanghai Jiaotong U. Faculty

2001	35	1 2.8%	37	9 24.3%	16	4 25.0%
2004	37	3 8.0%	35	7 20.0%	16	7 43.0%

Fudan U. Faculty

2004	30	1 3.3%	30	13 43.0%	10	2 20.0%
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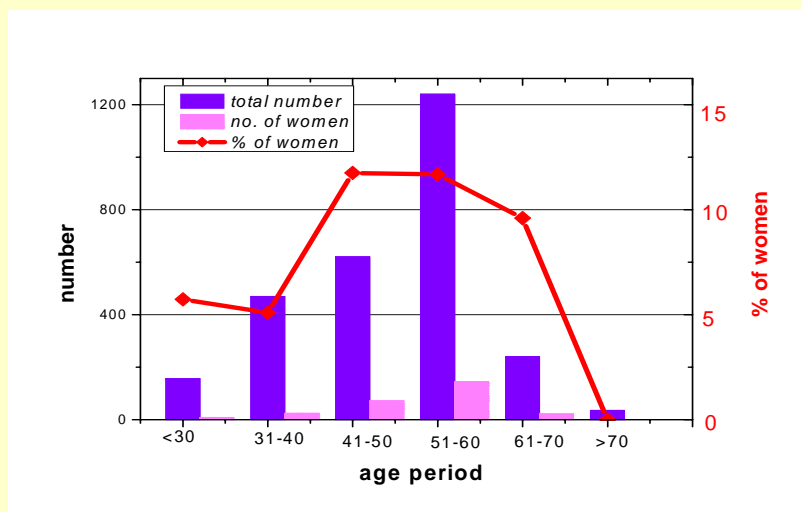
Number of senior research staff in CAS Institute of Physics 1995-2004



Institute of Metal Physics, CAS

Year	No. of Full Profs			No. of Assoc. Profs		
	Total	Female	% Female	Total	Female	% Female
2000	101	10	9.9	209	37	17.7
2001	107	8	7.5	196	35	17.9
2002	105	6	5.7	195	34	17.4
2003	103	7	6.8	201	33	16.4
2004	101	7	6.9	208	36	17.3

1986-2000 Ratio of Women Awarded NNSFC Grants in Physics



2001-04 NNSFC Grants Awarded

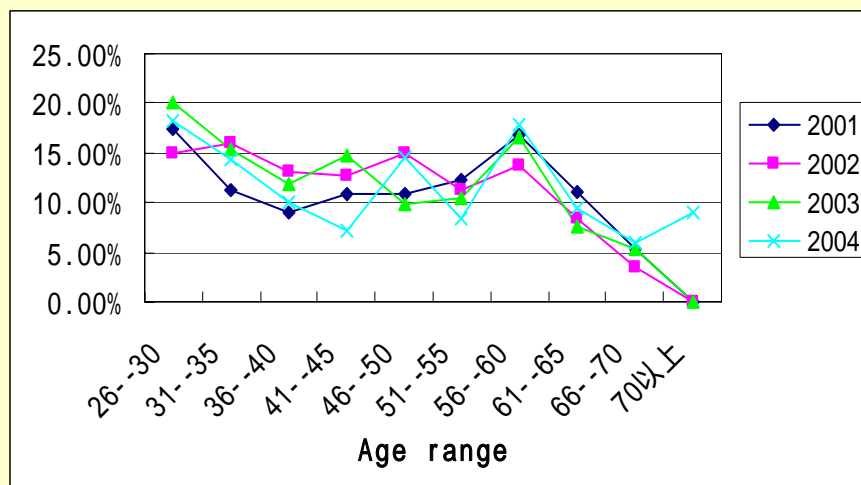
Ordinary Grants:

	2001	2002	2003	2004
Total No.	1108	1348	1470	1723
No. of Women	127	177	197	206
% of Women	11.5	13.1	13.4	12.0

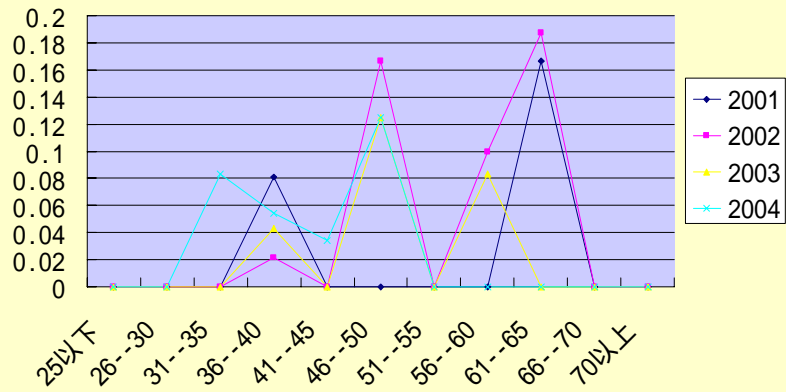
Major Grants:

Total No.	100	123	154	177
No. of Women	5	6	5	8
% of Women	5	4.9	3.25	4.5

Ratio of Women Awarded Ordinary NNSFC Grants Ranked by Age



Ratio of Women Awarded Major NNSFC Grants Ranked by Age



Disturbing Factors

- Changing policies
- Job discrimination
- Age discrimination
 - Young Investigators' Grants
 - Retirement age
- Marriage and child care

Actions of CPS WGWIP

- Special March issue of *Physics* magazine each year with articles on women in physics
- Round table meeting to discuss women issues at Annual CPS meeting
- Special girl's prize in certain provincial Physics Olympiads
- Increased participation in physics for the public
- Interaction with media
-



The poster features a central collage of portraits of women in physics. The text on the poster includes: '推动人类文明与进步的物理学' (Physics that promotes human civilization and progress), '2005 世界物理年' (2005 World Physics Year), '人物篇 杰出的物理学家' (Portrait Series Outstanding Physicists), and '27'. At the bottom, it lists the organizing institutions: '主办单位: 中国物理学会, 中国物理学会' and provides contact information: 'www.cpsb.com.cn, cpsb@aphys.ipho.org.cn'.

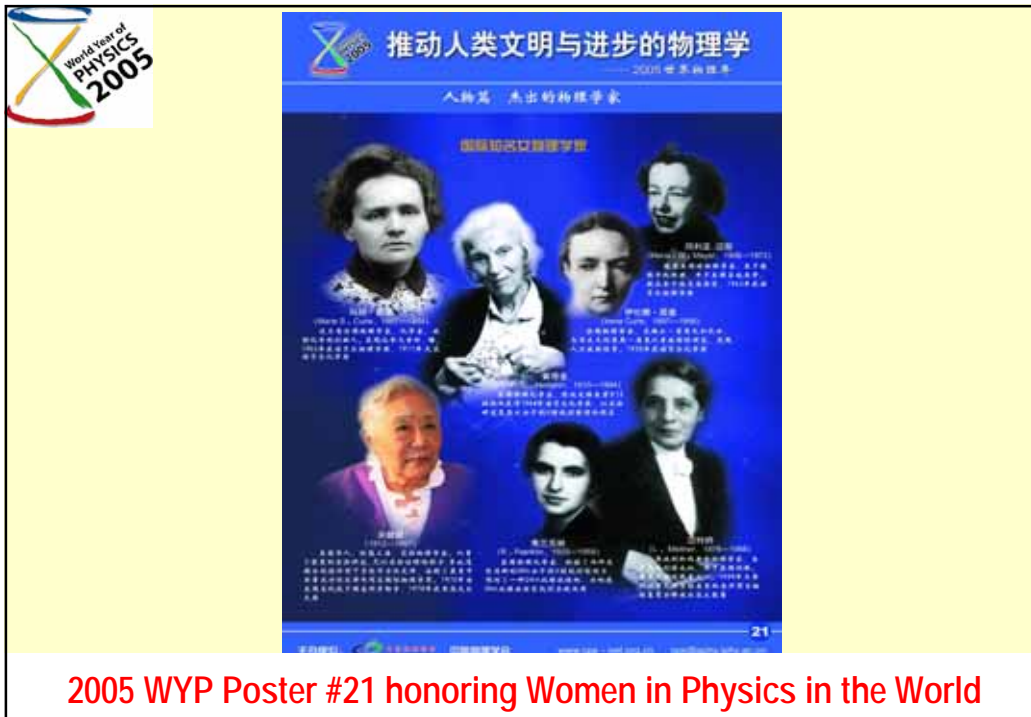
Callouts on the left side of the poster identify the following individuals:

- Ru-Song Zhou
- Ming-Zhen Wang
- Cheng-Shu Wang
- Xi-De Xie

Callouts on the right side of the poster identify the following individuals:

- Hong Jing
- Lan-Ying Lin
- Lin Li
- Ze-Hui He

2005 WYP Poster #27 honoring Women in Physics in China



2005 WYP Poster #21 honoring Women in Physics in the World

Physics Enlightens the World

2005 April 19, 17:00 to 21:00
Light Chain across China

100,000 students, half of whom were girls, took part in all kinds of physics activities

Role Models and Award Winners

- “March 8 Red Banner Bearers”
- Biennial nomination of CAS Outstanding Women Scientists started in 2003
 - 2005 10 selected, of which 2 in physics, 2 applied physics
- 2003 l’Oréal-UNESCO Prize
- 2004-5 Ye Qi-Sun Prize

2003 l’Oréal-UNESCO Prize awarded to Fang-Hua LI



Fang-Hua LI

Institute of Physics, Chinese Academy of Sciences, Beijing, has specialized in electron microscopy. Her work has pushed back the limits of observation of crystalline structures through the elimination of interference.

2004-5 Ye Qi-Sun Prize awarded to Hua-Chen HU



•Born 1933; trained in nuclear reactor physics; retired 1989

•Became interested in neutron diffraction in 1960's, in 1993 successfully applied her expertise in nuclear physics to solve the 70-year old extinction problem in diffractometry through the general solution of Darwin's transfer equation

•Extended results to cylindrical and spherical crystals

•Results for imperfect crystals applied to the design of X-ray and neutron scattering monochromators in Grenoble

•Invited to rewrite a chapter in 2004 edition of International Tables for Crystallography Vol.C.

Summary

- The ratio of women in physics research has decreased slightly, but that of students and professors has not changed much
- The number of women graduate students is increasing
- The number of women awarded research grants is increasing slowly
- Much still needs to be done to help women enter top positions in research and university

Looking ahead

- **Xie Xi-De Award for women in preparation**
- **Increase working group membership**
- **Increase awareness of problem at top levels**
- **Increase popularization of physics**



Women physicists of the future!



Mother and daughter look at the set of 51 WYP posters
2005 Fuzhou