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## INWES Member Newsletter #10 - March 2012

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#### **News from the President**

If you attended ICWES15 in Adelaide, I hope you enjoyed it!

I would like to express my sincere thanks to the previous INWES executive committee: President Sue Bird, Vice president Monique Moutaud, Treasure Gail Mattson, and others members. Also thank you for Marlene Kanga, Ha Do and organizing committees of ICWES15. It is a great success.

I am Kong-Joo Lee of Ewha Womans University, Korea. You may remember me! We, with KWSE, organized ICWES13 in Korea 2005. From this



INWES President Prof. Kong-Joo Lee at the closing ceremony for ICWES15.



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experience, we realized that regional networking is very important to go further. We therefore tried to organize Asian Pacific Nation Network (APNN). Finally, we did it at ICWES15.

From this networking experience, I have taken the responsibility of INWES for next three years as President.

INWES is an international network body for women engineers and scientists and becomes our playground.

We, INWES, hope for reconciliation rather than power struggling;

We, INWES, hope for sharing and caring rather than domination:

We, INWES, hope for mutual communication for changing the world;

We hope that through INWES, helpful and useful information has been flowing freely, like a large river to supply those thirsty people in the world. We realized that we have very similar experiences. These experiences are strongly embedded in our heart and body, as women scientists and engineers.

We are not patient enough to hold our experience inside our minds.

Rather we try to express ourselves and our feelings and share our experiences with our nations.

So, through the Internet and other ways, we get together to try to make better world by sharing our passions, times, energies and ideas. And every three year, through ICWES, we interact together in an open forum to be reenergized and to return to our place ready to change our workplace and appreciative of what we are.

I think this is the history of INWES.

I hope that in the next three years, collectively, in your home, workplace, organization, country, and region - Asia and Pacific Nations, Africa, Europe, Middle East, North and South America - we try to reshape the future world.

We, Women Scientists and Engineers, have enough power because of our expertise, and with warm heart we can care for and share our world together. Please open your heart and reach your hands out.

See you in Los Angeles, United States, for ICWES16.

Kong-Joo Lee, INWES President

#### **Obituary of Mrs Marthe Achy Brou**



Mrs Marthe Achy Brou passed away on December 8 2011.

Mrs Achy Brou was honorary member of INWES and was president of ICWES8 in Abidjan

She was also convener of ICC after ICWES8 and honorary president of CIFISATS.

She graduated from l'École polytechnique filles de Sceaux in France.

She had a brilliant professional and political career as a congress woman, Deputy Chairwoman of Congress of Ivory Coast, Mayor of Gd BASSAM, the historical Capital city of Ivory Coast, Deputy Chairwoman of the Economical Council of Ivory Coast and Ministry of Social Affairs and Solidarity.

She was a mother to four children, three boys and a girl. The INWES president, on behalf of all INWES members, wishes to offer her sincere condolences to the family.



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#### ICWES15 - A Memorable Conference, Adelaide July 2011

By Dr. Marlene Kanga

The 15<sup>th</sup> International Conference for Women Engineers and Scientists was held in Adelaide in July 2011 and was a milestone event that celebrated the achievements of women engineers and scientists from around Australia and internationally. The conference provided an opportunity to learn from the best models for sustainable work practices to attract and retain women in the engineering profession.

The ICWES conference has been held every three years since 1964 and it was the first time this conference is being held in the Southern Hemisphere. The conference had the theme "Leadership, Innovation, Sustainability". Speakers and papers were presented on the technical innovations and leadership achievements of women in science and engineering organisations. The conference was hosted by the National Committee for Women in Engineering. Engineers Australia and the International Network for Women Engineers and Scientists (INWES). There was also a strong presence by members of the International Committee for Women in Engineering from the World Federation of Engineering Organisations (WFEO). There were approximately 600 delegates from 30 countries, making this a truly international event.

The conference program used the strategy "attract, retain, support and celebrate" which has been used successfully by the National Committee for Women in Engineering since the Year of Women in Engineering in 2007. The program provided women in the engineering and scientific professions with a rare opportunity to meet and listen to many Australian and international leaders in women scientists and engineers and be inspired by their leadership journeys, their innovations and their recommendations for a sustainable future.

The conference was supported by various international organisations. The government of South Korea supported the attendance of 25 women scientists and engineers and UNESCO has pro-



Delegates at ICWES15



Delegates at ICWES15

vided funding for women engineers and scientists from developing countries to attend.

The Hon. Kate Ellis, Australian Federal Minister for Employment Participation and Childcare and Minister for the Status of Women opened the Conference. Prominent keynote speakers included Mrs. Janet Holmes à Court AC, Chair of the John Holland Group, Dame Professor Jocelyn Bell Burnell, DBE, FRS, FRSE, who was part of the research team that discovered the first radio pulsars, Dr. María Jesús Prieto-Laffargue, a telecommunications engineer, and the first woman to be President of the World Federation of Engineering Organisations and Professor Elizabeth Taylor AO, a leading academic and former Chair of the Board of Professional Engineers of Queensland.



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Delegates from Kuwait Soicety of Engineers



Reception at residence of the Governor of South Australia



Winners of the International Travel Awards funded by UNESCO

Ms Bernie Hobbs, a leading science broadcaster facilitated sessions with invited speakers on the conference themes followed by lively discussion. Invited speakers were leaders and achievers in science, engineering and business and included **Dr. Cathy Foley**, Chief Research Scientist with

CSIRO Materials Science and Engineering and the first woman to be President of Science and Technology Australia (STA), Ms Kathy Hirschfeld, former General Manager BP Refinery, Bulwer Island, Queensland and now a nonexecutive Director of Snowy Hydro Limited and the Queensland Emergency Reconstruction Authority, Ms. Lorie Jones, a Principal with Sinclair Knight Merz and specialist in environmental engineering and renewable energy engineering. Ms Gretchen Kalonji Assistant Director-General for the Natural Sciences to UNESCO the first woman to hold such a position at UNESCO, Dr. Di McCarthy, Chief Executive Officer of The Royal Society of New Zealand, Ms Melissa Mellen the 2010 Telstra South Australian Business Woman of the Year; Professor Tanya Monro, one of Australia's leading physicists and the 2011 South Australia Australian of the Year, Professor Karen Reynolds, Flinders University, Engineers Australia 2010 Professional Engineer of the Year and Ms. Sylvia Tulloch, a Director of Dyesol Limited.

There was a special focus on leadership with a CEO Circle, a panel discussion featuring chief executives and leaders of major engineering and science organisation including Ms. Kathryn Fagg, President, Fast Moving Consumer Goods, Linfox Logistics, a large transport company, Ms. Karen Moses, Chief Operating Officer, Origin Energy, one of the largest integrated energy producers in Australia and involved in several large scale gas projects, Ms. Helen Gluer, Chief Executive Officer of Genco2 Queensland, a large power generator. and Ms Kathy Hirschfeld, Board member of Snowy Hydro Limited.

The **Poster Exhibition** featured more than 200 research posters from women scientists and engineers around the world. The exhibition was opened by **Ms. Gay Thompson, Member for Reynell South Australia**, who represented the Hon. Gail Gago, Minister for the Status of Women, South Australia. Her presence demonstrated the ongoing commitment and support of the Government of South Australia to this conference.

The **Future Minds Expo** addressed the goal of attracting young people to science and engineering and was an opportunity for high **school** and undergraduate university students from



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around Adelaide to meet conference delegates and scientists and discuss their career options. More than 100 students attended Day 3 of the conference at no cost as part of this program.

The conference also featured the first ever meeting of member organisations from the Asia Pacific region to enable them to work together for future projects. Leading women engineers from 12 countries took part in this meeting which was also supported by UNESCO.

The conference was supported by a large number of sponsors including BHP Billiton, Leighton Holdings, Caltex, Kuwait Women Engineers, SKM, Origin Energy, Parsons Brinkerhoff, Worley Parsons, PepsiCo, government agencies including SA Water Corporation and RailCorp NSW, universities including The University of Adelaide and University of South Australia and other organisations including Engineers Media and UNESCO. The breadth of organisations supporting this conference demonstrated that the management of diversity is an important issue especially with the growing shortage of engineers and scientists in Australia and around the world.

Photographs, Powerpoint presentations and videos of all keynote speeches can be accessed from the INWES website.

Dr. Marlene Kanga is a Board member of INWES and was Co-Chair of the ICWES15 Conference.



INWES President Sue Bird at opening of ICWES15



Achievement awards presented by INWES President Prof. Kong-Joo Lee to outgoing Board members - President Sue Bird and Treasurer Gail Mattson at the ICWES15 Gala Dinner

#### **INWES Board Meeting 2011**

By Sue Bird

Board Meeting No 13 took place in Adelaide, Australia on 17th and 18th July 2011. The attendance from the Board was sadly depleted because of illness, family illness, other commitments and the difficulty of paying for and getting to Australia. Only 4 members could make it, Sue Bird, Gail Mattson, Monique Moutaud and Kong-Joo Lee. Other members made themselves available by phone or Skype, and some sent proxy votes so that the business of the meeting could be completed. Reports were also received from those who couldn't attend. This made the



operation of the Board meeting difficult, as we had no help with minutes, running errands or obtaining information, but in the event, we were



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able to complete the business of the Board with the hard work of those who made it and the guests who were also present and who cheerfully gave their time and effort. We give them our sincere thanks.

The first day was taken up with board business, including reports from officers and from committees. The financial situation was presented and discussed (not very good, but living within our means!), regional networks reviewed, and the progress report for 2008 – 11 presented. Finally, the strategic vision for the new board was considered

The second day was the one our guests attended, and began with a tour de table of events and initiatives and news from around the world presented by Board members and guests. There were then reports on the Education and Research Institute (ERI), notes on projects and programmes, and information on INWES' partnerships with other organisations. Reports were also presented of meetings - ICWES15 and ICWES16 were very important, and potential hosts of Regional Meetings and Asia Pacific Nations Network (APNN) meetings were discussed. A workshop of strategic issues for the future took the form of a brainstorming session, where a number of ideas for the future were developed.





The minutes of the meeting will be available on the website soon.

#### **INWES Regional Conference in New Delhi 2012**

India boasts of relatively large number of women scientists and engineers employed in educational institutions, government bodies, public and private sector organizations. However, there is still lot of untapped talent available in the country. Moreover, the numbers start diminishing as the women move up the corporate ladder due to family and social commitments and gender bias prevalent in some organizations. A lot needs to be done and can be done to increase the number of women scientists and engineers, especially at the top management and decision making level.

There have been very few exclusive forums extended to the women scientists and engineers in India to share and discuss their experiences,

expertise, issues and concerns, pertaining to their fields. The Regional Conference of International Network of Women Engineers and Scientists (INWES) - 2012 will provide a platform to the Indian women engineers and scientists to share their experiences and expertise as well as gain access to and network with the experts globally.

The INWES Regional Conference 2012 aims to:

- Acknowledge outstanding achievements of women engineers and scientists in the region
- Enhance networking and to promote women in science & engineering in the region



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- Provide guidance for career advancement for women in the profession of science and engineering
- Facilitate the development of activities that promote women in engineering and other scientific, technological & social fields
- Mentor young women in science and engineering fields in the region.

The Conference is being organized by Women in Science and Engineering – India in association with INWES, Delhi Technological University, Construction Chemicals Manufacturing Association and Orissa State Volunteers and Social Welfare Association (OSVSWA) in New Delhi. The Conference will be held on October 12-13, 2012 at India International Centre, New Delhi.

The conference themes are as below.

## Theme 1 – Women in Science and Engineering

- Role of Women Engineers and Scientists in Sustainable Development
- Effective Practices for Recruitment, Mentoring and Retention of Women in Science and Engineering Professions
- Managing Work-Life Balance

- Women in Entrepreneurship, Innovation and Leadership
- Women and Academics Breaking the Glass Ceiling

#### Theme 2 – Greening the Infrastructure

- Green Buildings
- Sustainable Transport
- Renewable Energy
- Water and Wastewater Management
- Waste Management
- Training for Green Jobs

#### **Key Dates**

Call for abstracts: 15<sup>th</sup> January, 2012

Deadline for abstract submissions:

30<sup>th</sup> June, 2012

Notification of acceptance of abstracts:

15<sup>th</sup> July, 2012

Deadline for submission of final papers

15<sup>th</sup> August, 2012

Notification of acceptance of final papers:

30<sup>th</sup> August, 2012

Abstracts should not be more than 500 words. The abstracts may be addressed to Ms. Nilanjana Rao, Honorary Secretary, Women in Science and Engineering at nilanjana.rao@wiseindia.org.

## ICWES16 - Hosted by Society of Women Engineers USA in Los Angeles



President of the Society of Women Engineers, Alyse Stofer, launches WE14 and ICWES16 at the closing ceremony at ICWES15.

The Society of Women Engineers USA is to host ICWES16, which will also mark 50 years since the first ICWES conference was held in 1964. This conference was also hosted by SWE and was held in the USA.

ICWES16 will be held along with the annual SWE Conference WE14. There will be a special track of papers for ICWES16 which will focus on international issues and the latest innovations in science and technology. Delegates will have the opportunity to attend the WE14 sessions as well as ICWES16 as all the sessions will be run in parallel over three days at the same venue.



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President of the Society of Women Engineers, Alyse Stofer, launches WE14 and ICWES16 at the closing ceremony at ICWES15.



Delegates from the Society of Women Engineers USA at the ICWES15 Conference.

SWE President launched ICWEs16 at the closing ceremony at ICWES15, inviting all delegates to another exciting conference.

#### **INWES Education and Research Institute (ERI)**

by Monique Frize, President INWES ERI

The Education and Research Institute (ERI) is a fairly new organization which received charity status in Canada in 2008 and in the USA (501c3) in 2010. The year 2010 was focused on developing the Institute by setting-up committees and appointing Board members. The following committees were created with the name of the person who chairs it in parentheses: Education (Jennifer Ng Ain Kin), research (Ruby Heap), projects (Paula Leventman), communications (Julita Vassileva), and the executive committee (Monique Frize). The Secretary General is Gail Mattson, the Treasurer and Chair of the Finance Committee is Claire Deschênes.

In 2010, we decided to move the bank account from Scotiabank to the Bank of Montreal be-

cause the latter offers accounts that carry no fees for charity or non-profit organisations. In this report, we enclose the Financial Review for 2010. Two Directors were added in 2010, Dr. Paula Le-



ventman, from Northeastern University in Boston, and Dr. Julita Vassileva, from University of Saskatchewan; two committees were added also in 2010: Dr. Ruby Heap, University of Ottawa to Chair the Research committee, and Ms. Jennifer Ng Ain Kin to Chair the Education committee. (Biographies of Board members and committee Chairs were posted on the website in 2011:www.inweseri.org.) On May 1st, 2011, at the Annual General Meeting, it was decided to



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ask Ruby Heap and Jennifer Ng Ain Kin to become members of the Board and to stay as Chairs of their committee.

In 2010, we signed a Memorandum of Understanding (MOU) with INWES (International Network of Women Engineers and Scientists) during the INWES Board meeting in Washington D.C. in August. The main points were: INWES members can apply for ERI funding for charitable projects, but the Institute alone decides which projects are funded. We agreed to share information on fund raising activities for charitable projects and maintaining links to each other's web sites; there should be brief news of the Institute's projects in the INWES newsletter.

In our 2011 Annual Report, you will find the goals and objectives of the Institute, who the Directors are, and what projects and plans are proposed for the future. The report will be posted on the Institute's website in January 2012.

With the global economic environment, it has been a challenge to design a project and raise funds to carry-it out. This was achieved in 2011 in relation to a workshop CWE+20 held on April 29/30, 2011. Twenty years ago, the Canadian Committee on Women in Engineering (CCWE) had proposed 29 recommendations (in its report Women in Engineering: more than just numbers, April 1992) to address issues for girls and youth, universities, workplaces, and professional engineering associations. After a major decline all over the world since 2003, it was time to revisit this issue and develop new recommendations to increase the participation of women in the profession.

The report of the April workshop is on the Institute's website (www.inweseri.org, CCWE+20 project). It is our hope that this project will become a model for other countries to emulate. We believe that the discussions and development of recommendations that happened in Canada will make a real difference in increasing the participation of women in the engineering profession. This could also happen elsewhere!

#### **News from INWES**

# INWES Asia Pacific Nation Network formed at ICWES15

By Dr. Marlene Kanga

The first Asia Pacific Nation Network meeting was held in Adelaide on 19th July 2011. Leading women engineers and scientists gathered to form a network for future projects. This meeting was held as part of the 15th International Conference of Women Engineers and Scientists (ICWES15) at the offices of Engineers Australia and was hosted by the Association of Korean Woman Scientists and Engineers (KWSE) and the International Network of Women Engineers and Scientists (INWES). The initiative was supported by the government of the Republic of Korea which is strongly committed to increasing diversity in science and engineering and supported the attendance of 35 delegates to the meeting and ICWES15 conference. 8 university undergraduate students were also supported to attend.



The keynote speaker, Professor Kong-Ju Bock Lee of Ewha Women's University in South Korea and former director of the Institute to Support Korean women scientists and engineers spoke of progress that has been made since the passing of legislation to foster and support women scientists and technicians in 2002. Women engineers and scientists from Mongolia, Vietnam, India, Indonesia, Taiwan, Malaysia, Australia, New Zealand, Papua New Guinea, Japan and the Republic of Korea spoke about the situation



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for women in their professions and actions taken by the government to increase the participation of women. However in many countries such as Mongolia and Malaysia, women already participate in significant numbers with more than 50 percent of students in engineering being women in some faculties of engineering in both countries.

The meeting was very constructive and agreed on the framework and governance structure of the INWES Asia Pacific Network which is to be chaired by the Korean Woman Science and Engineers for the first three years to 2014.

The Asia Pacific Nation Network is to hold its next meeting on 13th June 2012 as part of the WiSET2012 Conference in Kuala Lumpur Malaysia. The network is an opportunity for women engineers and scientists to learn from the experience of their neighbours in successfully attracting and retaining women in the profession.

Dr. Marlene Kanga is a Board member of INWES and was Co-Chair of the ICWES15 Conference.

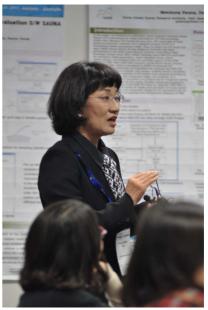
#### INWES Participation at the 36th Session of the General Conference and at the International Ngo Day

by Monique Moutaud, INWES President Elect.

The General Conference of UNESCO is a two-week meeting held every two years. It aims to examine the activities of the Director-General over the past two years and to valid the programme and budget for 2012-2013. To do so, every country is represented and can make recommendations to the different commissions (Education, Administrative, PRX, Natural Sciences, Communication, ...). INWES, recognized as an NGO with operational relationship with UNESCO, was invited as observer. This is a very good opportunity to better understand the strategic planning of UNESCO on the several priority issues.

In relation with our own objectives, we are concerned by Education for all, Natural Sciences and by some transversal issues which were discussed at the meeting:





Keynote Speaker Prof. Kong-Ju Bock Lee

- actions promoting women empowerment and gender equality
- the 7th UNESCO youth forum
- UNESCO Leaders' Forum where nine Heads of State and Government and 56 Ministers and heads of Delegation participated on "How does UNESCO contribute to building a culture of peace and to sustainable development?"

Members of INWES were also able to attend some parallel events on the following issues:

- Girls' and Women's Education: the way forward proposed by the head of Gender equality
- Guidebook for textbook Research and Textbook revision (launch of the UNESCO publi-



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cation) proposed by the Education Sector, Section of Education for Peace and Human Rights.

 Ocean at the UN Conference on Sustainable Development (RIO+20), Launch of the UN Report "A Blueprint for Ocean and Coastal Sustainability"

During the meeting, INWES members learned a lot about the changes within UNESCO with Irina Bokova, as its new Director-General. Following an independent external evaluation of UNESCO, she is now pushing for changes in the organisation on several issues. INWES may be concerned about some of them, such as:

- The division for Gender Equality is now attached to the office of the Director –General and is in charge to implement the policy in all programme sectors of UNESCO. For us, it means that if INWES works with the Natural Sciences sector, it can develop some project on scientific issues, education and gender equality together and it doesn't have to address different sectors or divisions.
- The External Relations sector was merged with Public Information sector for more efficiency. It is easier to find information on the new website. INWES will have to deal with this new sector to discuss its status and to apply to the Participation programme. Until now, it was the programme under which INWES got funds for the developing countries.
- New directives concerning UNESCO's partnership with NGO was adopted during the General Conference and during the International NGO day we discussed all the changes in relationship between UNESCO and NGO.
- More cooperation of UNESCO's secretariat with the National Commissions for UNESCO was also proposed. They want to strengthen the capacities and improve the contribution of National Commissions to the mission and work of UNESCO. It is expected that national Commissions may seek partnership with local or regional NGOs to support their actions. INWES should be aware and take advantage of this situation.





For more information on specific themes, you can find all information on: http://www.unesco.org/new/fr/general-conference/

Some more details on the new Directives concerning NGO partnership with UNESCO.

The body that represents NGO in official relations with UNESCO is the NGO-UNESCO Liaison Committee and is a member of the executive committee of UNESCO.

The new directives adopted at the UNESCO meeting have prompted changes for the election of the NGO-UNESCO Liaison Committee as well as a review of the policy manual of the NGO Liaison Committee.

Among the main changes, with the objective to reinforce the relationship between UNESCO and civil society, the General Conference adopted the reduction from three to two relations catego-



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ries. The new categories are Consultative status and Associate status. With the help of the Programme sectors, all NGO with official relations with UNESCO will be reclassified by the next Executive Committee at the end of February 2012. INWES was in operational relations status which doesn't exist any longer. It is hoped that it will be granted the Associate status.

This means that INWES will have to strengthen its relations at national, regional and international levels to demonstrate its role under UNESCO directives and priorities. Under such conditions, INWES is therefore interested in receiving information about the activities of its members may have with UNESCO. It will be important that anyone involved with UNESCO provide a short summary of their involvement in order to provide such information when needed.

Please send your report to our secretary general: inwes@brocku.ca

#### Focus on inclusive work practices at World Federation of Engineering Organisations (WFEO) Women in Engineering Seminar

By Dr. Marlene Kanga

Geneva, September 2011. With the focus on energy at the World Engineers Conference in Geneva in 2011, the World Federation of Engineering Organisations (WFEO) Committee for Women in Engineering held two panel discussions which focussed on the role of women in energy and the importance of inclusive work practices for the retention and support of women in engineering. INWES is a member of the Committee and the panel discussions were attended by INWES President Prof. Kong Joo Lee, INWES President Elect Ms. Monique Moutaud. Prof Kong Joo Lee made a presentation on the activites of INWES and the formation of the Asia Pacific Nation Network (APNN) which held its first meeting in Adelaide in July 2011. Many orgamnistaions that are members of APNN are also represented at the WFEO Committee for Women in Engineering.



WFEO Women in Engineering Panel Discussion 7th Sept. 2011, Geneva

L to R: Ms. Annick Carnino, Advisor, WiN Europe, Ms. Jacqueline Buysee, Engineering Leader, AREVA, Ms. Marie-Helene Therre, Chair WFEO Committee for Women in Engineering (2008-2011), Ms. Monika Tabacchi, Human Resources Manager, GE Thermal Europe, Ms. Dominique Mouillot, President WiN Europe and CEO Onet Technologies

The panel discussions included leading women from major global companies in the energy sector including Onet Technologies, GE and AREVA. Ms. Nathalie Hardyn, Deputy Director of the Geneva Chamber of Industry and Services (CCIG) spoke of the debate over nuclear energy in Europe following the recent tsunami disaster at the Fukushima reactor in Japan. Currently 38 percent of energy in Switzerland is generated from nuclear reactors. In addition, Switzerland is at the heart of the electricity trading market, important electricity from France and Germany and seeling to other neighbouring countries. The government strategy is to phase pout nuclear energy by 2050 and replace with alternatives including renewable energy. In addition to energy reduction targets, the government of Switzerland is also considering the construction of new hydro electric, geo thermal and gas fired generating plants. Women engineers have an important role in these developments from the design of these plants to implementation and operation.



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WFEO Women in Engineering Meeting 6th Sept. 2011, Geneva

L to R: Ms. Marie-Helene Therre, Chair WFEO Committee for Women in Engineering (2008-2011) and Prof. Kong Joo Lee, President INWES (2011-2014)

The speakers for the panel discussion on inclusive work practices included Ms. Dominique Mouillot, President of Women in Nuclear Energy (WiN) Europe and CEO of Onet Technologies which has 2,200 employees and is a world leader in nuclear engineering and technologies. In Europe Onet Technologies is known for its know-how in nuclear engineering, the maintenance of reactors, decontamination, treatment of nuclear waste, training, and as an industrial operator. Onet Technologies is a major player in nuclear decontamination and the dismantlement of nuclear reactors. The company is also a specialist in turnkey design and construction of nuclear reactors, use of remote-controlled equipment, nuclear diving, and non destructive inspections, nuclear and chemical decontamination, removal of asbestos fireproofing, classified nuclear installation for the protection of the environment (waste management and treatment)

and other world-wide site services for nuclear installations.

WiN is a global organisation founded 18 years ago with 3500 members in 80 countries including Australia. WiN Europe was established to communicate with the public ion issues relating to nuclear technology, and especially with the younger generation, to encourage education and training and knowledge transfer and to foster diversity and gender equality in scientific and technical fields. The organisation exchanges experiences, ideas and best practices and aims to play an active role in promoting the nuclear industry and address public perceptions of nuclear safety. The organisation also fosters education and training in the nuclear industry and facilitates entry levels jobs for women, provides mentoring for women in the industry and ahs established program to encourage greater gender diversity. In Europe, WIN has 1500 members.

Dominique spoke of the importance of recognising the achievements of women in engineering and has established the *Fen Energia Award* to promote diversity in the nuclear industry. The award is provided in collaboration with the European National Energy Leadership Academy (ENELA) and consists of several prizes in various categories including students, internships and scholarships for technical site visits for women in the nuclear industry.

Ms. Jacqueline Buysee, engineering leader AREVA, and founder of the AREVA women engineers network, spoke of the importance of networking in supporting women in engineering and technology. AREVA is a global energy company with operations in nuclear and renewable energy. AREVA has 40,000 employees in Europe and North America. 35% of engineers and managerial staff are women. AREVA received the Diversity label by AFNOR, an organisation of the largest employers in France, in 2010 and 2011. The Women Engineering Network holds an annual symposium and has alliances with other networks in large organisations in France. It has established a mentoring program and has encouraged the company to increase the number of women in management to 20% and to implement policies such as teleworking where



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employees can work from home for one day per week.

Ms. Monika Tabacchi is the Human Resources Manager for General Electric (GE) Thermal Division in Europe. GE has 82,000 global employees and had revenues of \$37.1 billion in 2009 and is one of the world's leading suppliers of power generation and energy delivery technologies. Its businesses include all areas of the energy industry including coal, oil, natural gas and nuclear energy, renewable resources such as wind, solar and biogas and other alternative fuels. 25 percent of the world's electricity is generated using GE technology, especially its gas turbine technology which is part of the GE Thermal Division. GE established its diversity program in 2007 following an employee survey. Its diversity strategies include targets for women in management positions, policies on working hours including flexibility, employee support including day care facilities, improving well being in the work place and developing a women's network. Recruitment strategies include policies which includes diverse candidates and selection panels, leadership development, coaching and mentoring. The company has also implemented an active policy to ensure equal pay which it

plans to achieve in the next few years. GE has received the European Gender Equality Award as a result of its pro-active policies to improve diversity in the workplace.

The panel discussion was followed by a workshop where participants discussed the strategies employed by the large organisations in Europe and considered how women of these may be effective in their own organisations.

The Committee for Women in Engineering is developing a guidance document on good practices for implementing diversity in the workplace. The document will incorporate the best practices from large companies in Europe, Asia and Australia. Companies from Asia and Australia participated in a workshop on good practices at the 15<sup>th</sup> international conference for Women Engineers and Scientists (ICWES15), held in Adelaide in July 2011. The document will be available at the committee's web page at www.wfeo.net/women.

Dr. Marlene Kanga is a Board member of INWES and a member of the World Federation of Engineering Organisations Committee for Women in Engineering. She is National President Elect of Engineers Australia.

#### **Introducing INWES Members**

# The Women in Medical and Biological Engineering Committee (WiMBE): A new Organisational member of INWES since the spring of 2011.

By Monique Frize, Chair (2009-2012)

The committee, created in 2004, is part of the International Federation of Medical and Biological Engineering (IFMBE). It's goal is to investigate and make recommendations to the Administrative Council regarding issues and steps necessary to:

 Increase the visibility and participation of women within IFMBE

- Address ways to improve the climate for women in IFMBE and the workplace
- Gather and disseminate information regarding the status of women in MBE

The Chair for the first two terms was Maria Siebes (Netherlands). The Vice-Chair was Laura Poole-Warren (Australia); Alicia El-Haj (UK) was a member as well as Herbert Voigt (USA and IFMBE President).

The new Chair became Monique Frize in 2009; the Vice Chair remains Laura Poole-Warren. Maria and Alicia have kindly agreed to remain a member of the committee. New members are: Jennifer L. Ayers (USA), Miya Ishihara (Japan), Eleni Kaldoudi (Greece), Susana Llanusa Ruiz (Cuba). A few other persons have been invited to join.



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When Maria Siebes' term as Chair ended in Munich (2009), she made several recommendations which will be examined and acted on by the committee during its present term (2009-2912):

- That the AC members and officers, the Academy, committees, especially the Nominations Committee, the Committee of National Secretaries, the Publication and Publicity Committee (PPC) be involved in activities of the WiMBE.
- 2. Regarding the Academy, that the program for young people be geared appropriately towards the needs of each gender.
- The Nominations Committee should recommend qualified women for positions on the AC, its various committees, the Academy, and for awards and prizes that they would merit.
- 4. The WiMBE wishes to work closely with the PPC to modify the committee's profile and information on the web site. To profile women in the Newsletter, hold workshop on topics concerning women in engineering, and have some papers in MBEC on this topic.

For the term 2009-2012, the committee's plans and actions are:

- Visibility: we need to have visibility for women as role models for girls and young women. This can also be done by electronic means, through the web site, and outreach events for girls and young women. The plan is to have a section of the Newsletter devoted to women in engineering. The PPC Chair, Dr. Lin, (Taiwan) has created a section in the newsletter for the committee's articles and news and we have submitted articles in every issue this year (2011). Our committee also needs more visibility on the web site and this has now been accomplished. We now appear in the section COMMITTEES under ORGANISATIONAL STRUCTURE.
- Conference organisers of official IFMBE events should be provided with a guideline and expectations regarding the involvement of women in visible roles in the organizing

- committee and also as judges for the young presenters' awards, as keynote speakers, and as chairs of sessions.
- 3. Develop a database of women in biomedical engineering and sciences.
- Organise panels or workshops on gender issues at major events (Greece 2010, Budapest 2011, Havana 2011, and Beijing 2012). Panels were held in Greece and Budapest and a workshop is planned for Beijing.
- Develop a network of contact persons from the 56 societies and ensure communications occur in both directions. This is also intended to help collect best practices and share these over the web site and Newsletter.

Maria Siebes, Eleni Kaldoudi, and Monique Frize participated in a panel at MEDICON 2010. This was very well attended with over 50 participants, including men and women. There were good questions, comments, discussion, and interest was shown on the work of the committee.

The Committee joined INWES for one year. The idea was to increase our profile and visibility outside IFMBE. Some members suggested to join the European platform of women in science (EPWS) if we wish to expand our networking.

In Budapest, we had presentations from Maria Siebes, Eleni Kaldoudi, Kathleen Geraedst from Belgium and Monique Frize. Herbert Voigt, IFMBE president, was the moderator. Again there were many attendees and good questions. Plans are already underway to prepare a session for the triennial conference in Beijing.

**Nominations**: We need to have more women at the AC, as awardees of prizes and awards, as keynote speakers, and as Fellows and Life Members. We need a database constructed with names of women who could be nominated for these various positions. A database was initiated at the Budapest meeting.



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#### Women in Sciences and Engineering (Wise) Organization – Jordan and Gju Chapter

The German-Jordanian University (GJU) is a public university of applied sciences that was founded in accordance with a Memorandum of Understanding reached between the Government of Jordan and the Federal Republic of Germany. The GJU recognizes the role of highly educated and effective professional women and their responsibilities towards the local community.

WISE- GJU Chapter aims for representing Jordan in the "INWES Arab league" as part of the University vision to support the representation of women in key positions and promote advancement and equality at the professional level. GJU policies and programs with similar goals to INWES can be demonstrated in GJU's strategic goal No. 6 which, aims at enhancing collaborative relationships with the local community and the surrounding region to foster educational, social, cultural, and economic development. This strategic goal is demonstrated by the university



#### الجامعة الألمانية الأردنية German Jordanian University

keenness to launch several initiatives and projects with particular emphasis on the field of water, environment and energy, including-but not limited to-designing and implementing public awareness campaigns on water scarcity, environmental challenges, the importance of renewable sources of energy and introducing appropriate water saving technologies for households.

WISE-GJU Chapter will target local communities, rural areas, female students, parents, teachers, elementary and secondary schools, and other educational institutions, focusing mainly on the involvement of women in rural areas.

#### **News from INWES Members**

# KWSE holds 19th Annual Meeting at EWHA Womans University

The 19th Annual Meeting of The Association of Korean Woman Scientists and Engineers (KWSE) was held on December 1st, 2011 at Ewha Womans University, together with a workshop on Converging Technologies. Members of KWSE gathered from different regions of Korea to look back on the various achievements of the association in the year 2011.

KWSE especially celebrated the election of Prof. Kong-Joo Lee as the new President of INWES as well as the establishment of the Asia and Pacific Nation Network (APNN) during ICWES15 in Adelaide, Australia. As the first Chair organization of APNN, KWSE will be formulating plans to organize the APNN meeting in 2012. President Byung-Joo Min presented Plaques of Appreciation to Assemblywoman Young-Ah Park,



Assemblyman Sang Min Lee, Secretary General of KOFST Sang-Mok Lee and to the Deputy Minister of the Ministry of Education, Science and Technology, Chang Kyung Kim, for various forms of support to the KWSE. An invited talk on the perspectives and plans of the Korean government to support basic research in science and technology was delivered by Dr. Se-Jeong Oh, President of the National Research Foundation of Korea.



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#### The Society of Women Engineers Announces 2011 Award Recipients at WE11 Annual Conference

CHICAGO—October 18, 2011—The Society of Women Engineers (SWE) is pleased to announce the 2011 award recipients. These individuals were honored for various accomplishments, yet all have demonstrated success, leadership and initiative in their areas of expertise. "This year's award recipients all positively influence women engineers and technologists, inspire the next generation, and help multiply the momentum within SWE and their own communities," says Melissa Tata, SWE President. "SWE is proud to honor these individuals who have reached momentous achievements and continually exhibit how to achieve success on their own terms."

Gail G. Mattson, P.E. with PAI Corporation in Oak Ridge, TN, and Joan Graf, IT manager for CenturyLink were two of the seven women to receive the Society's Fellow Award. The recipients are "women who have achieved professional excellence, while also making substantive contributions towards advancing the objectives and goals of the Society; and who have contributed significantly to the public's awareness of engineering as a profession for women, and informing employers, the profession and the public of women's contributions to the fields of engineering and/or engineering management."

Since receiving her MSE in Environmental Engineering from the University of Washington, Gail Mattson has had a highly accomplished professional career as a project manager and engineering manager focused on environmental engineering, remediation and hazardous and radioactive waste management. She has provided over 25 years of service to SWE at the section, regional, national and international levels, including serving as the 2000 National President and the SWE Representative to the National Board of Directors for the Girl Scouts of the USA and the International Network for Women Engineers and Scientists. Gail Mattson's Fellow Award citation read "for sustained efforts in SWE and other professional and civic organizations to increase public awareness of opportunities for women in engineering."





Gail G. Mattson, PE (upper photo on left) and Joan Graf (lower photo on left) receiving the SWE Fellow Award pin from the SWE President, Melissa Tata at the Awards Banquet.

Joan Graf began her career with the company CenturyLink, formerly known as US West and Qwest communications, as an outside plant engineer, and landed a supervisory position in two years. She is currently engaged in teaching, mentoring, and coaching the development organization (more than 2,000 people) to use a new software development lifecycle process. A SWE member since 1976, Graf has held a leadership role in the organization every year for 19 years. Joan Graf's Fellow Award citation read "for dedication and significant service to SWE's mission at every level of the organization over the course of a long, contributive career."

The awards were presented at the awards ceremonies during WE11, the Society's Annual Conference, held at McCormick Place, October 13-15, in Chicago. More than 5,800 attendees included collegians and professionals from the industry, government and academia. For more information on the awards and award recipients,



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please visit <u>SWE Magazine's online conference</u> <u>issue</u>. Joan Graf and Gail Mattson award information are on pages 145 and 147 and INWES involvement on page 24.

#### **About SWE**

The Society of Women Engineers (SWE), founded in 1950, is a not-for-profit educational

and service organization. SWE is the driving force that establishes engineering as a highly desirable career aspiration for women. SWE empowers women to succeed and advance in those aspirations and receive the recognition and credit for their life-changing contributions and achievements as engineers and leaders. For more information about the Society, please visit <a href="https://www.swe.org">www.swe.org</a> or call (312) 596-5223.

#### Women in Science and Engineering – A Greek Experience

By Eleni Kaldoudi

#### **Abstract**

During the last century, women have made an impressive progress in society, education and the workplace, increasing considerably their participation in historically male-dominated fields such as business, law, and health sciences. However, in science and engineering women's involvement has been less dramatic, and their progress in the respective workplace (especially senior posts and decision making bodies) even slower. In Greece, the cradle of science and philosophy, this situation is even more pronounced. Although Greek women are overrepresented in undergraduate studies (more than the European mean), their proportions quickly decrease as one moves up the academic scale. Recent statistical surveys also indicate that this situation may not be adequately apparent, thus more publicity and possibly mainstreaming is required.

I was invited as a panelist in a special session on "Women in Engineering" in the 12th Mediterranean Conference on Medical and Biological Engineering and Computing (MEDICON 2010), held under the auspices of the International Federation of Medical and Biological Engineering (IFMBE) in Chalkidiki, Greece. Considering that, in the western tradition, ancient Greek philosophy is considered as the establishment of science, the conference and session chairs. Prof. Nicolas Pallikarakis and Prof. Monique Frize respectively, thought that the Greek reality on women in science and engineering should be also presented, preferably by a Greek person. The invitation was a surprise. I'm a woman, and I consider myself a scientist in the field of biomedical engineering and informatics, and this is where my relevance to the topic of this panel would end a few months ago. So I took up the challenge in awe, and during this engagement a

number of interesting findings came up, some of which I would like to share here as part of this editorial.

In the western tradition, physical philosophy and thus science are believed to have originated in ancient Greece. Although there are considerable differences (and remarkable exceptions), across the ancient Greek world of historic times women were mostly restrained at home, under the oppression of men (father, then husband), not allowed to participate in social and political activities, solely relegated to child bearing [1,5]. However, interestingly enough there was an equal men/women representation in the Greek pantheon and an indirect but significant political influence by the hetaerae, accomplished female companions who received good education and enjoyed considerable freedom. Moreover, although not many historical references exist, it is known that there was significant involvement of women in the making of philosophy and mathematics. A striking example is the Pythagorean School where women entered on an equal basis with men [1,7]. Pythagoras himself was surrounded by women. His teacher was Themistocleia, a Delphic priestess, and his wife, Theano, was a mathematician herself and the director of the School after Pythagoras' death. Three of their daughters, Damo, Myia and Arignote were also distinguished mathematicians and philosophers. Later, Pythagorean women include Periktione, who is commonly identified as Plato's mother, and the well known mathematician and astronomer Hypatia of Alexandria in the 4th century AC.

Greece today is still mostly a patriarchal society, but there are continuous improvements on gen-



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der equality due to women's obligatory education and the overall socio-economic development. There is no specific gender mainstreaming plan, but rather a general gender equality plan. For example, an enactment of 2000 on equal gender treatment requires that a minimum of 1/3 of each gender be represented in all public decision-making bodies. On the basis of specific initiatives in Greece, today there are considerably more than 100 societies dealing with gender equality and related issues.

According to an official report from the Greek Ministry of Development [4], during the past 50 years there is an impressive increase of women's representation in the educational system and a gradual reduction of the gender gap. While in 1969-1970 women were only 31% of the total undergraduate university population, thirty years later they prevailed over men, i.e. 59% women undergraduates in 2000-2001. Women constitute almost half of the student population of the Technological Institutions and gradually start prevailing over men: 50% in 1994 and 53% in 1998. Although gender-based differences in student's participation in various scientific fields are being reduced, a difference among sciences still exists. Thus, in Humanities, Arts, Law and Social Sciences women outnumber men. Women's participation in the Natural Sciences has increased significantly, increasing from 20% in 1971 to 43% in 1997. Finally, in the field of engineering, the women's ratio increased from 6% to 25% during the same period. In 2004 Greece was one of the seven European countries (Bulgaria, Portugal, the Former Yugoslav Republic of Macedonia, Lithuania, Estonia and Romania being the other six) that had reached the point at which one third of women graduates in engineering were women [6] – a level that the European Commission had suggested as the target for 2010.

Indeed, in the year 2006 the Periktione Network, a newly founded women researchers' network under the auspices of the General Secretariat for Research and Development, Ministry of Development, conducted a statistical research among 2.200 women in 50 Greek research institutions (description and results are available from National official site for mapping women researchers in Greece,

http://ereunitries.ekt.gr/ereunitries/). The majority

of the responders were active in the social sciences and humanities, 34% in medical sciences, 12% in natural sciences and only 4% in engineering and technology. The survey also highlighted the fact that only 20% of the women responders were participating in management organisations, while a mere 10% had been appointed as a national representative in EU and/or national institutions. The quantitative part of the same survey showed that the majority of women (67%) do not experience direct gender discrimination in the workplace, while indirect gender discrimination was mentioned mostly by elder women researchers (%33). More than 50% of the survey participants realize that women do face more problems, and they mainly attribute these to time overload due to concurrent family commitments. Actually the majority admits that their role as active researchers interferes with their family and vice versa. For these reasons, more than 66% consider gender to be an impediment to their career advancement. However, despite all of the above issues, it is striking that the majority of survey participants report very good working relationships with their male colleagues and they are satisfied or very satisfied by their choice of profession.

This registered contentment could probably be explained by looking at the relative figures for Greece and the rest of European Union States. As indicated by recent official European Union (EU) data [2,6] (indicative figures summarized in Table 1), the proportion of women graduates in tertiary education in Greece is around 62%, higher than the EU mean. Moreover, the proportion of women graduates in engineering, manufacturing and construction in Greece is 45%. This figure is much higher than the EU mean and actually is the maximum for the EU countries. Although the figures are not as positive for the proportion of women researchers in general, and per sector (namely, higher education, government, business), the figures for Greece are still higher than the EU mean. However, the situation is reversed when women proportions in senior research positions are considered. What is known as the "leaky pipeline", (i.e. the fact that the proportion of women declined significantly as they moved towards higher levels in the academic and research career) is more pronounced in Greece than in the EU. For example,



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Table 1 Some figures on proportions of women's participation in research for Greece as opposed to the European Union. The figures are based on statistical data as presented in [2] and [6].

|   | Greece | EU mean | EU max         | EU min   |
|---|--------|---------|----------------|--|
| proportion of women graduates in tertiary education (2004) [6]                        | 62%    | 59%     | 77%<br>Cyprus  | 30%<br>Bosnia & H.                             |
| proportion of women graduates in engineering, manufacturing & construction (2004) [6] | 45%    | 26%     | 45%<br>Greece  | 13%<br>The Nether-<br>lands & Swit-<br>zerland |
| proportion of female researchers (2006) [2]   | 36%    | 30%     | 49%            | 18%  |
|   |        |         | Lithouania     | The Nether-<br>lands)                          |
| proportion of female researchers in higher education sector (2006) [2]                | 38%    | 37%     | 51%<br>Latvia  | 25%<br>Malta                                   |
| proportion of female researchers in the government sector (2006) [2]                  | 41%    | 39%     | 64%<br>Malta   | 29%<br>The Nether-<br>lands                    |
| proportion of female researchers in the business sector (2006) [2]                    | 28%    | 19%     | 41%<br>Romania | 10%<br>The Nether-<br>lands                    |
| proportion of women Grade A professors (2004) [6]                                     | 11%    | 13%     | 29%<br>Romania | 8%<br>Ireland                                  |

the statistical data shows that in 2004 only 11% women were Grade A professors in Greece as opposed to 13% EU mean (which is still a low figure).

The official national data [8] for a typical academic career (students and staff) in all Greek Universities for the year 2007 is shown in Figure 1. Women make-up 65% of graduate students, and as MSc/MA degree holders, they outnumber men. However, these figures decline rapidly as one advances to higher level positions, with women being only 18% of Grade A professors.

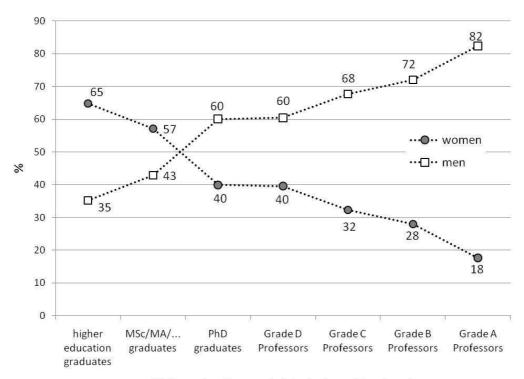
So where do we really stand? In recent years, women in Greece were highly and successfully involved in higher education and postgraduate studies, and they are steadily progressing following academic and research careers, even in fields traditionally dominated by men. In their research working environment, they seem to encounter a positive attitude from males and, although they face some gender related difficulties (mainly due to family commitments) they

seem satisfied with their research and academic professional life.

To draw an analogy that I used during my speech in the MEDICON Conference in Chalkidiki, at first glance, it seems that Greek women researchers are pleased to be standing amidst a charming Greek scenery. Only they do not seem to be aware that right next to them stands the uniqueness of Mount Athos (The Monastic Community at the Holy Mountain in Chalkidiki, Greece, http://www.mountathos.gr/), where no women are allowed to enter. Although the status of Mount Athos is a matter of faith and religion and is not an issue in this very discussion, senior research posts is another matter altogether. The fact that women's representation in science and engineering declines significantly in the senior scientific/academic grades and research decision-making bodies is a European and international problem, addressed regularly in a number of official reports, e.g. [2,3,6,9]. As stated in the executive summary of the WIRDEM 2008 report [9], "such a situation must inevitably mean that the individual and collective opinions of women



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higher education grade (students and teachers)

Figure 1. Proportions of men and women in a typical academic career in Greece. The data refers to total numbers of students or academic staff in all Greek Universities at the end of academic year 2006-2007 [8].

are less likely to be voiced in policy and decision-making processes, which may lead to biased decision-making on topics of future research". And this most likely leads to a vicious circle on women under-representation in science. The same report concludes to a number of measures that should be taken towards equality, and thus quality, in the research arena. These include the following: a sincere commitment by national governments towards equality and mandatory gender balance in decision-making bodies; transparency and meritocracy should be enhanced; decision-makers, peers and the public should be regularly updated and educated about the inequality issue and how to address it.

In conclusion, action must be taken. A good friend of mine, Adamantios Koumpis, Research Director of ALTEC S.A., when presented with these facts and issues, commented that: "Clemenceau said that 'war is much too serious a matter to be entrusted to the military' – in the same way, one could dare say that research is much too serious a matter to be entrusted only to the men"...

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#### **Conferences, Workshops & Events**

19-20 March | Stuttgart, Germany
European Conference on Gender and Innovation - Maximising Innovation Potential Through
Diversity in Research Organisations
www.gendera.eu/index.php5?file=21

17-20 May | Budapest, Hungary Gender@2012 8th European Feminist Research Conference www.8thfeministconference.org

14-16 June | Kuala Lumpur, Malaysia Women in Science, Engineering and Technology International Conference 2012 (WiSET 2012) www.iemwomenengineers.org

23-25 July | Toulouse, France 5th Equality, Diversity and Inclusion International Conference www.edi-conference.org

29-31 August | Bergen, Norway 7th European Conference on Gender Equality in Higher Education www.uib.no/gender2012 4-6 September | Sorrento, Italy XIV. European Congress of BPW international www.bpw-italy.org

12-14 September | Athens, Greece Women's International Research Engineering Summit (WIRES) www.wires.gatech.edu

12-13 October | India International Centre, New Delhi, India INWES Regional Conference 2012 www.inwes.org

13-15 November | Houston, Texas, USA WE12: The SWE Annual Conference for Women Engineers we12.swe.org

16-21 August 2013 | Istanbul, Turkey 31th IFUW Triennial Conference International Federation of University Women www.ifuw.org

20-25 October 2014 | Los Angeles, USA 16th International Conference of Women Engineers and Scientists (ICWES16) www.inwes.org

#### **INWES Member Newsletter**

Deadline for Issue #11: 31 May 2012

Contact: Petra Mayerhofer, Communications & Newsletter Committee Email petra.mayerhofer@dibev.de



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