

## Contents

P4 Introduction
P6 Female Scientists you should know - Europe
P8 Female Scientists you should know - Slovakia
P 10 Women in Science in a Nutshell
P16 Programme
P 18 Speakers

## Introduction

This brochure presents material for the Women in Science Conference organised by the Slovak Liaison Office for Research and Development in Brussels in cooperation with the Permanent Representation of the Slovak Republic to the European Union, Slovak Centre of Scientific and Technical Information and the Ministry of Education, Science, Research and Sport of the Slovak Republic.

The objective of this material is to recall dedicated and determined female scientists who have contributed significantly to scientific discovering and have pursued science over the years. Moreover, this brochure provides a brief overview on how gender equality had resonated over time in the EU and what is the state of play in this issue.

We have chosen three main indicators to outline the current development in the:

- proportion of female and male PhD. graduates
proportion of women and men in leading position in academia
-proportion of women depending on science and technology field of study
Despite the fact women represent half of the population, their representation in science, research and innovation lags behind. Nevertheless, we live in era of an open and broad discussion about this issue. International organizations and European institutions have paid particular attention to gender issues in science, empowerment of female scientists, and better use of their educational and intellectual potential. Thanks to all these efforts and visibility of the topic, gender equality in research and science resonates. Yet at the same time, neither of these efforts have ensured an equal representation of women within some scientific domains and fields of study and the proportion of women in leading positions either.

We believe that this event will help send a message to all those who understand that equal chances in science and research is not just only a women's issue, but it affects all of us.

## 'Science is not a boy's game; it's not a girl's game. It's everyone's game. It's about where we are and where we're

 going."
## Female Scientists you should know



1910-1994

Dorothy
Mary Hodgkin
Chemist
A British chemist who developed protein crystallography, for which she won the Nobel Prize in Chemistry in 1964. She advanced the technique of X-ray crystallography, a method used to determine the three-dimensional structures of biomolecules.


## Slovakia

## Female Scientists you should tnow




Anna Kocková was a specialist in the field of technica microbiology and biochemistry, who laid the foundations of modern Czechoslovakia with her research and publishing activities. Her research on yeasts is of international importance and has revealed 3 new microorganisms.

## 1915-1992

cová Déreroví wrossor, Irena Jakub-cova-Dérerová was mainly involved in pediatric cardiology and rheumatology. It is one of the pillars of pediatric cardiology in Slovakia. In 1974 she successfuliy led the First Children's Clinic, where she established a Research Laboratory for Pediatric Cardiology and Rheumatology.
$\square$

## WomeninScienceinaNutshell

## EU strategy for gender equality in research and innovation over time

Political support for gender equality in European research and innovation started at the end of 90s. The European Commission initiated and addressed this issue in strategic documents, and particularly in the Treaty of Lisbon, where gender equality was mentioned for the first time. The main motivation was to stop wasting of women's talents and the immense human potential. In February 1999, the European Commission adopted a communication "Women in Science - Mobilising women to enrich European research". In the communication an Action plan with the aim to close gender gap in science was identified. Result of further activities was the establishment of Helsinki Group on Gender in Research and Innovation (HG) as an advisory group to promote equality between women and men in research and innovation. ${ }^{2}$

One year later, the European Technology Assessment Network published an ETAN report (Promoting excellence through mainstreaming gender equality) that provided an overview on the integration of women in science and research, a method of organisation and financing of science. In 2001 "Science and Society Action Plan" with a new action to establish a European platform of women scientists and also to promote gender equality in science in the wider Europe was published. ${ }^{3}$

Based on this, a working group was set in December 2001 to analyse women researchers in the private sector. The High-level STRATA-ETAN Expert Group was composed of academics, gender experts, industrialists, and also human resources representatives from international companies with significant research departments.

Representation of women also became to be a topic in the FP6, where a specific budget was dedicated to women in science activities under "Structure the ERA" strand. A total of EUR 15 mil. was to be spent on projects to network and raise gender awareness and to encourage young women to undertake scientific careers. In 2002, the Commission established another group of experts known as the ENWISE group (Enlarge Women in Science to the East). Mission of the group was not only to monitor and report the conditions and status of female scientists in the Central and Eastern countries and Baltic States but also to provide recommendations on how to raise awareness of the need for gender equality in scientific research in the "ENWISE countries" and how to increase their participation in Framework Programmes. ${ }^{4}$

[^0]In 2003 , the European Commission published „She Figures 2003"- the first comprehensive elaboration of key data, presenting the latest figures on the representation of women in scientific education and employment. Since then, the European Commission has been reporting on gender equality every three vears. However, the first document could be considered the initiator of a new era, making available gender-related data on human resources in the European Research Area. In 2004, the Commission prepared an analysis of the current situation, together with some ideas about future steps, so called "Excellence and Innovation - Gender Equality in Science". This working document, among others, called for increasing of number of women in leading positions in public research to $25 \%$ by 2010. Subsequently, an expert group "Women in Research Decision making" was established by the European Commission to analyse research decision-making in Europe from a gender perspective and to recommend measures on how to increase number of women in top level positions. Nevertheless, despite all efforts, this target has not been achieved in all sectors. The third edition of "She Figures 2012" showed that in 2010, on average throughout the EU-27 only 15,5\% of institutions in the Higher Education Sector were headed by women and just 10\% of universities had a female rector. On the other hand, $36 \%$ of board members were women in 2010 , whereas in 2007 they represented only $22 \% .{ }^{5}$

In 2007, the Mid-Term Assessment of Science and Society Activities under FP6 included, inter alia, specific recommendation: "focus should be shifted from the issues of Women and Science in general towards specification of more concrete problems of individual groups of women (targeting and strengthening particularly vulnerable groups, such as women in post-communist countries)". ${ }^{6}$

To update the information available on gender mainstreaming in national policies, the report "Benchmarking policy measures for gender equality in science" was released in 2008. Considering the slow progress being made toward genuine gender equality, the initial steps were taken in the 7th Framework Programme with the launching of extensive public awareness-raising activities in the scientific community, where
there is still lack of women at the top level positions. The statistics of the "She figures 2009" showed an increase in the proportion of women in research, particularly at the top level.

Over the next years, the European Commission has been publishing other analysis of the current state-ofplay of initiatives for promoting gender equality in science and research from several perspectives. "Gender Equality Policies in Public Research" was one of them and it came at a critical review point along the path towards a fully operation European Research Area. The year 2013 was an important year in terms of implementing quotas or targets for the underrepresented sex in decision-making positions: from eight countries in 2008 to 18 in 2013. However, this was not the case in public research. In the same year, the number of countries, where research institutions modernised their management through gender equality plans has only modestly risen from 12 to 15 .

[^1]In December 2015, the European commission launched the EU Prize for Women Innovators to raise public awareness of the need for more innovation and more women entrepreneurs. The European Commission also keeps tracking of the progress women make in research and innovation: the latest She Figures 2015 statistics show that women are gaining ground in science but their progress is still, despite all efforts, slow and uneven.

## State of the play - Is the gender gap closing?

In recent decades, there have been many actions initiated not only by the European Commission but also Member States. All these actions, analyses and established expert groups have had the main aim - increase the participation of women in science and research and achieve better gender balance. The aim of this summarisation is to provide a brief overview with the key statistics and number showing gender equality in science and research.

When comparing the proportion of men and women in science we can start with gender balance amongst PhD. graduates in the EU. According to the latest statistics, women PhD. graduates rose from 43\% in 2004 to 47\% in 2014 (EU-28 average). The highest representation of women's PhD. graduated was in 2012 in two Baltic countries Latvia and Lithuania where female PhD. graduates counted for $60 \%$ and $57 \%$. In other 12 countries women made up over half of total percentage PhD. graduated. On the other hand, the lowest percentage of female PhD. graduated was in France (43\%), Austria (42\%) and Czech Republic (41\%).


For the better view of gender gap in science and research it is necessary to take other indicators into account. One of them is a proportion of men and women depending on science and technology field of study. Despite progress that has been made segregation in university studies by gender is still evident in all eu-28 countries. In average, women are visibly predominant in education (64\%) and humanities and arts (55\%), but also in social sciences, business and law where they represent $51 \%$. The biggest concentration of women in those fields is in Latvia and Austria (80\%), but also in Belgium (83\%), Slovakia and Finland (79\%). On the contrary, proportion of women amongst PhD graduates in engineering, manufacturing and construction has traditionally been low, only $28 \%$ in average. However, there are some exceptions, for instance Romania where proportion of women has reached $43 \%$ or $41 \%$ in Portugal. ${ }^{8}$

${ }^{8}$ She Figures 2015, European Commission, 2016, p.29

Favourable statistics confirming high professional maturity and high percentage of women in science and research in the countries of Central and Eastern Europe and Baltic countries, where women make up 38\% of the whole scientific work force (while in the old Member States it is only $27 \%$ ) may, however, obscure the not so favourable fact, that majority of female scientists is employed in the scientific fields with the lowest expenditure incurred by the Member States. Although women are not equally represented in the top level positions at universities or in academies of sciences even thought they account for up to $54 \%$ of academic teaching staff. ${ }^{9}$

This brings us to the third indicator - the proportion of women employed as the head of universities or institutions. Here, relatively good increase of number of female scientists and PhD. candidates is not reflected in an increase of number of women in top-level positions in academic institutions, where women are still generally and markedly under-represented. Nonetheless, the percentage of women in leading positions has risen from $16 \%$ to $20 \%$ but in general remains stable and has only slightly increased. Proportion of women as heads of institutions varies between individual countries from only $10.2 \%$ in France to $50.0 \%$ in Sweden followed by Denmark with 32.7\%. ${ }^{10}$


There are many other indicators that contribute to the overall image of gender equality in science and research and those will be debated with our speakers and panellist at the Women in Science Conference.

The conference will bring together female scientists and experts in this issue to discuss conditions for women in science and go through the key factors behind the low representation of female scientists.

The aim of the first part of the event is to present current statistics, initiatives and different analytical viewpoints on the issue of gender equality in science and research. The second part of the event will have a form of the panel discussion where female scientists will discuss the main problems, barriers and necessary changes to be made at all levels.

We believe that this event will help send a message to all those who understand that equal chances in science and research are not just only a women's issue but affect all of us.

## Programme

## 13:30 Registration

14:00 Welcome address
Peter Javorčik, Permanent Representative of the Slovak Republic to the EU
14:15-15:20 Women scientists in the EU and global research landscape
Gender in the Global Research Landscape
Stephane Berghmans, Vice President of Elsevier for Academic \& Research Relations
Women scientists in Europe and the EU strategy for gender equality in R\&I
Viviane Willis-Mazichi, Head of Sector "Gender", DG Research \& Innovation, European Commission

## Gender equality in Slovakia

Dr. Alexandra Bitušiková, Senior Adviser at the European University Association, Vice-Rector
for Research at Matej Bel University in Banská Bystrica

## 15:20-17:00 Panel discussion - What are the factors behind the <br> under-representation of female scientists?

Prof. Monika Rychtariková, PhD., Professor, KU Leuven and Slovak Technical University in Bratislava
Prof. Viera Stopjaková, PhD., Professor, Vice-dean, Slovak University of Technology in Bratislava
Dr. Alexandra Bitušiková, Senior Adviser at the European University Association, Vice-Rector
for Research at Matej Bel University in Banska Bystrica
Dr. Stephane Berghmans, Vice President of Elsevier for Academic \& Research Relations
Carole Paleco, Member of the European Platform of Women Scientists

Moderator: Katě̌ina Svičková, European Commission, LEAD@COMM
17:00 Closing remarks
17:10 Reception

## Speakers

## Viviane Willis-Mazzichi

## Peter Javorčik



Peter Javorïk received his M. Sc. degree in Mechanical Engineering from the Slovak University of Technology in Bratislava and his post-graduate qualification from Comenius University, Institute of International Relations. His professional career has always been linked to the European policy. Since 1992, he has been working at the Ministry of Foreign Affairs on several positions. Between 1999 and 2001 he was a director of Department of the Chief Negotiator for the EU accession and subsequently he was responsible for coordination of the accession negotiations at the Mission of the Slovak republic to the EU. From 2004 to 2007 he was a member of the Cabinet of Commissioner for Education, Training, culture and Youth. Between 2012 to 2015 Javorǐk served as State Secretary of the Ministry of Foreign and European Affairs of the Slovak Republic. Currently he is the Permanent Representative of the Slovak Republic to the EU.

## Stephane Berghmans

Stephane Berghmans is a Doctor in Veterinary Medicine who obtained his Ph.D. in genetics and molecular bilogyy at the University of Liege. He then became a postdoctoral fellow at Harvard Medical School where he established zebrafish as a cancer model at the Dana Farber Cancer Institute. He moved to the biotech sector in Cambridge (UK) in 2004 where he headed zebratish drug discovery for early in vivo compound screening. He moved to Portland (Oregon, USA) in 2008 where he joined Znomics as Director of Biology. He joined the European Science Foundation in 2009 as Head of the Biomedical Sciences Unit, managing the secretariat general for the European Medical Research Councils (EMRC) with activities in science management, policy and strategy. Stephane
 joined Elsevier in 2013 as VP of Academic Relations in Brussels, responsible for relationships with research organisations and EU institutions. Since 2015 Stephane is a member of the EuroScience Governing Board.


Viviane Willis-Mazzichi is the Head of the Sector "Gender", DG Research \& Innovation, European Commission. The Gender Sector develops the strategy on Gender Equality in the European Policy for Research and Innovation. It coordinates and monitors its implementation along three objectives: gender equality in careers at all levels, gender balance in decision-making, integration of the gender dimension in research content and programmes. The strategy is implemented within the European Framework Programme Horizon 2020 and the European Research Area in collaboration with Member States, Associated Countries and research institutions.

Further information and publications can be found at the following address: http://ec.europa.eu/research/swats/index. cfm?pog=oplicylib=geender
She is one of the authors of the publication SHE Figures 2015 , Gender Equality Policies in Public Research, Gendered Innovations and the Gender Equality chapters of the ERA Progress Reports.

## Alexandra Bitušiková

Assoc. Prof. Dr. Alexandra Bitušíková, PhD. is a Vice-Rector for Research at Matej Bel University in Banská Bystrica. She received a PhD in social anthropology from Comenius University in Bratislava. She was a visiting scholar at Cambridge University, UK; University College London, UK; and Boston University, U.S. (Fulbright). She participated in several Framework Programmes and H2O2O research projects and is the author of more than a hundred publications on urban change, diversity, identity and gender.
In 2001, she was seconded to the European Commission, DG Research in Brussels. From 2003 to 2008 she worked at the European University Association (EUA) in Brussels, and since 2009 she has been a Senior Adviser for EUA-Council for Doctoral Education. She is the Slovak national delegate in the H2020 SC6 Programme Committee and the national delegate in the ERAC Standing Working Group on Gender in Research and Innovation (former Helsinki Group).

## Monika Rychtáriková



Monika Rychtáriková was born in Bratislava in 1975. She studied architecture and building constructions at the Faculty of Civil Engineering at STU Bratislava, where she graduated (1998), received her PhD degree (2002) and became a full professor (2016) in the field Theory of building structures. In 2015, she has received an award "Female scientist of the year" in Slovakia for her research in Architectural acoustics in multidisciplinary context. During the past 15 years, she has been active in different fields of building physics in general and building and room acoustics, environmental and virtual acoustics in particular. Her recent research relates to perception of sound, echolocation of blind people, and different topics that concern indoor and outdoor acoustic comfort. During her research stays, she has visited TU Wien, TU Delft, RWTH Aachen and TU Zagreb. Since 2001 she has been working and/or collaborating with the Laboratory for Acoustics, Dep. of Physics and Astronomy at KU Leuven, where she has been performing most of acoustic experiments. Since 2016, she works as a full time as assoc. professor at the Faculty of Architecture at KU Leuven and as a part time professor at Faculty of Civil Engineering at STU Bratislava.

## Viera Stopjaková

Viera Stopjaková was born in Slovakia in 1968. She received the M. Sc. and the Ph. D. degrees in Microelectronics from Faculty of Electrical Engineering and Information technology, Slovak University of Technology in Bratislava, Slovakia in 1992 and 1997, respectively. Currently, she is a full time Professor at the Institute of Electronics and Photonics of the same university. She has been involved in more than 20 national and international research projects under different funding schemes such as Tempus, Esprit, Copernicus, FP, ENIAC/ECSEL JU, H2O2O, etc. She has accomplished several study and research stays in the US, Canada, UK, and Belgium. She has published over 120 papers in various scientific journals and conference proceed ings; and she is a co-inventor of two US patents in the
 field of on-chip supply current testing. Her main research interests include IC design and testing, on-chip IC testing, smart sensors and biomedical implants, ultra-low power IC design and applications, on-chip energy harvesting, and self-powered integrated systems. She received an award "Slovak woman of the year 2016" in Science and Research field. Since 2015 she has been a Vice Dean for science and research at the Faculty of Electrical Engineering and Information Technology, Slovak University of Technology in Bratislava.

## Carole Paleco



Carole Paleco, holds a Master degree in Translation. She has worked as a freelance translator and since 2002 has been working for the International Relations at the Roval Belgian Institute of Natural Sciences: She has notably developed, through the project e-CASTEX, the European online database for scientific travelling exhibitions (EXTRA) managed by the ECSIE network; organized the ist CASTEX Symposium on exhibition coproduction (2003) between Natural History Museums; She was RBINS project manager for the European project GAPP (Gender Awareness Participation Process) (2007-2009) promoting scientific careers towards young girls and has managed the Gender Action Plan of the EDIT Research Network of Excellence (2006-2011) developing a European mentoring programme in addition to the Work-Life Balance and Fellowships for Women in Science activities. She also works on research projects and is the deputy manager of the Belgian office of the European project SYNTHESSY fostering researchers' access to NHM collections. She has coordinated the Local Action Plan for Brussels for the European project PLACES (Platform of Local Authorities and Communicators Engaged in Science 2009-2014) and is since then involved in the development of Citizen Science activities at the RBINS fostering collaborations between in-house researchers, education service, itizens and policy makers through further European initiatives, notably the European Project "Doing It Together Science - DITOs". She has been President of the association Belgian Women in Science (BeWise) (2008-2012) and Vice-President (2012-2016) during which years she created a mentoring programme in 2010 at National level. She has written and directed the documentary "Science needs Youl" and developed an online tool "gousciences" to address career paths in sciences in school classes through role models. She is a member of the Gender Mainstreaming group coordinated by the Federal Science Policy (BELSPO) since 2016.

Kateřina Svičkrová
Katerina Sviciková is a Policy officer in the European Commission. She has academic background in European studies, international political economy and international relations and work experience in European Union affairs and governance, justice and home affairs, science for policy and development of social enterprises. She is a founding member of LEAD@COMM, a women's professional network in the European Commission and a founding member of "Oranzovy' klub", a civic association in the Czech Republic promoting equal representation of women and men in public and political life.


## WOMEN IN SCIENCE

Slovak Liaison Office for Research and Development

## CONTENT CREATION

Terézia Lesayova
Soña Pallayová

## DESIGN AND LAYOUT

Saska Pallay - www.saskapallay.com

## PHOTO CREDITS

A. Matzová - Portrait, pr. č. S2016/1673, HF 12339, Museum Spiša, Spišská Nová Ves
J. Kišová - Archive of Slovensky Vếlár,
A. Polácková - Archive of Charles University, Prague.

## PRINTED BY

Slovak Centre of Scientific and Technical information
Lamačská cesta 8/A
P.O. Box 458

81104 Bratislava
Slovak Republic
www.ctisr.sk

## DISCLAIMER

The information contained on publication is for general information purposes only.
http://www.slord.sk
Rue du Luxembourg 3
1000 Brussels, Belgium

CVII
http://www.cvitisr.sk
Lamačská cesta 8/A
81104 Bratislava, Slovakia

# MINISTRY OF EDUCATION, SCIENCE, RESEARCH AND SPORT OF THE SLOVAK 

http://www.minedu.sk/
Stromová 1
81330 Bratislava, Slovakia

$\oplus$


[^0]:    ${ }^{2}$ http://ec.europa.eulresearch/swats/index.cfm?pg=policy\&ilib=gender
    ${ }^{3}$ In 2001 women represented half of the student population, but hold only $10 \%$ of the senior positions in academia and even less in industry. Science and Society Action Plan, https://cc.europo.eul/research/swafs/pdf/pub_gender_equality/ss_ap_en.pdf
    4 Stocktaking 10 years of „,Women in Science" policy by the European Commission 1999-2000, 2010, https://ec.europa.eu/research/swats/pdif/pub_gen-der_equality/stocktaking-10-years-of-women-in-science-book_en.pdf, (p.20)

[^1]:    She Figures 2012, European Commission, 2013 http://ec.europa.eu/research/science-society/document_library/pdf_06/she-figures-2012_en.pdf (p.8) https://ec.europa.eu/research/swats/pdf/pub gender equality/stocktaking-10-years-of-women-in-science-book en.pdf (p. 23)

