



IEEE Women in Engineering (WIE) at the end of 2020

Dakar Senegal, 5th Decemder 2020

Cinzia Da Via'
The University of Manchester, UK
Stony Brook University, USA



Connect. Support. Inspire.



Some Information about myself

- Professor at The University of Manchester (UK)
- Visiting Professor at the University of Stony Brook, New York, USA
- Member of the ATLAS Collaboration at CERN – LHC
- IEEE WIE International Committee Member
- IEEE NPSS WIE Liaison

Scientific Interests:

- Detector development : silicon pixels, fast timing
- Radiation effects in silicon, Lazarus effect
- 3D sensors for high energy physics and other applications
- 3D printed detectors, Vertical integrated microsystems
- Quantum Imaging



About IEEE Women in Engineering

IEEE Women in Engineering (WIE) is a global network of IEEE members and volunteers dedicated to promoting women in STEM, and inspiring girls around the world to follow their academic interests in a career in STEM.

Our Mission: The mission of IEEE WIE is to facilitate the recruitment and retention of women in technical disciplines globally.



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IEEE WIE has...

- **23,000+** members in more than **100** countries
- **900+** Affinity Groups and Student Branch Affinity Groups
 - Affinity groups provide the opportunity for members to network at a local level.
- **50+** WIE Committee volunteers driving global activities
- **500+** Conference attendees
- **10** Summits on **5** continents
- **4** Annual IEEE WIE awards
- The award-winning *IEEE WIE Magazine*...and **much more!**



NPSS WIE events at Conferences and Schools



IEEE WIE Member & Affinity Group Support

- Travel Grant program
 - Support in the form of grants for IEEE WIE members to attend and present at IEEE sponsored conferences or IEEE WIE sponsored events.
<https://wie.ieee.org/grantsandscholarships/>
- Initial & Special Funding
 - IEEE WIE encourages the development of local activities that add professional value to IEEE WIE members and are aligned with our mission.
 - Sample activities include: IEEE WIE workshops, IEEE WIE panel sessions at IEEE Society conferences, joint IEEE WIE/Young Professionals activities, etc.
<https://wie.ieee.org/funding/>
- Promotional Items
 - Requests for WIE promotional items at events to bring visibility to the WIE program
<https://wie.ieee.org/wie-promotional-material-request-form/>

IEEE WIE International Leadership Summits



- WIE Summits provide regional opportunities to foster networking, mentorship, and collaboration
- Past themes: “Inspire to Lead Change in Engineering”, “Disrupt – Breaking the Barriers of Thought”, “Empower, Aspire to Inspire”
 - Tracks focus on leadership skills, entrepreneurship, innovation & technology, emerging technologies, empowerment...
- 2019 locations:
<https://wie.ieee.org/leadership-summits2019/>

- Porto, Portugal
- Richland, WA, USA
- Bangalore, India
- Beijing, China
- Naperville, IL, USA
- Lima, Peru
- Halifax, Nova Scotia, Canada
- Buenos Aires, Argentina
- Islamabad, Pakistan
- Ibadan Oyo, Nigeria

2020 WIE ILS locations



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2020 IEEE WIE International Leadership Conference (ILC)

- 7th Annual IEEE WIE ILC
- **19-20 May 2020** (Tue-Wed) **VIRTUAL!!**
- San Diego Convention Center, San Diego, CA, USA
- Conf. Chair: Kathy Herring Hayashi
- Provides leading-edge professional development for mid to senior-level technical professionals
- 2019: 500+ attendees; 35 countries; 200+ companies/organizations; 24% IEEE & WIE members
- **Focus Areas:** Innovation, Empowerment, Executive Leadership, Disruptive Technology



<http://ieee-wie-ilc.org>

2020 Nobel Prize

Emmanuelle Charpentier, Jennifer Doudna



work on a new genetic editing method called Crispr-Cas9, which can be applied to experimental treatments for sickle cell disease and cancer therapies.

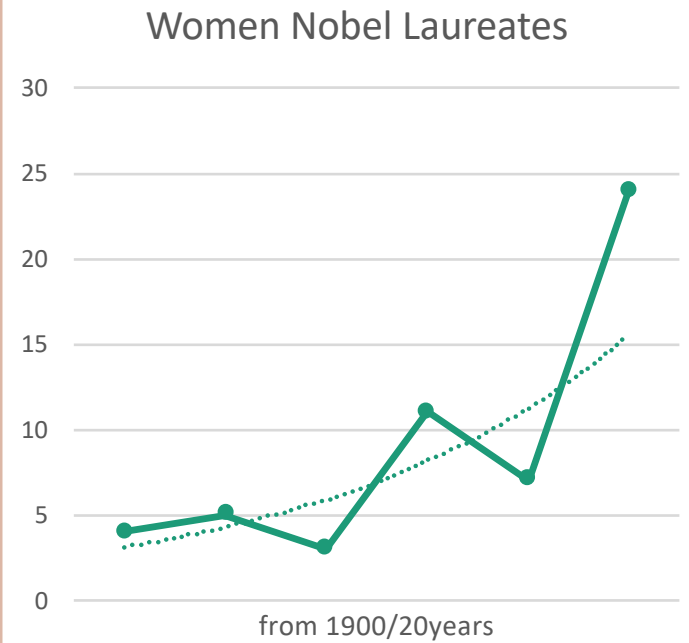
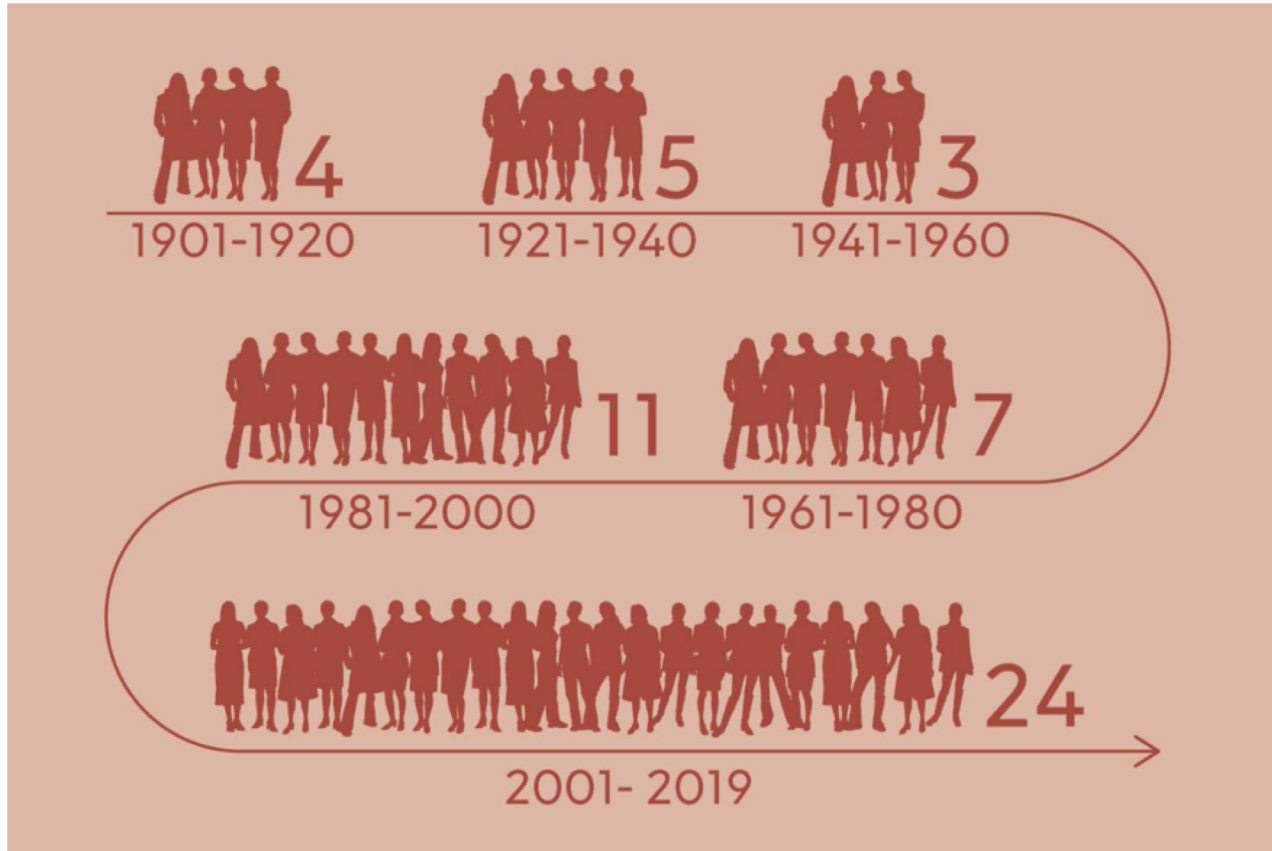
Andrea Ghez



Together with Reinhard Genzel, for their decades-long research in collecting conclusive evidence for a supermassive black hole in our galaxy.

And Roger Penrose for his work for proving the existence of black holes as a direct consequence of Albert Einstein's general theory of relativity.

Nobel Prize Awarded to Women



The Nobel Prize in Physics

The Nobel Prize in Physics 2020

Andrea Ghez

“for the discovery of a supermassive compact object at the centre of our galaxy”

The Nobel Prize in Physics 2018

Donna Strickland

“for groundbreaking inventions in the field of laser physics”

“for their method of generating high-intensity, ultra-short optical pulses.”

The Nobel Prize in Physics 1963

Maria Goeppert Mayer

“for their discoveries concerning nuclear shell structure”

The Nobel Prize in Physics 1903

Marie Curie, née Skłodowska

“in recognition of the extraordinary services they have rendered by their joint researches on the radiation phenomena discovered by Professor Henri Becquerel”

4

The Nobel Prize in Chemistry

The Nobel Prize in Chemistry 2020

Emmanuelle Charpentier

“for the development of a method for genome editing”

The Nobel Prize in Chemistry 2020

Jennifer A. Doudna

“for the development of a method for genome editing”

The Nobel Prize in Chemistry 2018

Frances H. Arnold

“for the directed evolution of enzymes”

The Nobel Prize in Chemistry 2009

Ada E. Yonath

“for studies of the structure and function of the ribosome”

The Nobel Prize in Chemistry 1964

Dorothy Crowfoot Hodgkin

“for her determinations by X-ray techniques of the structures of important biochemical substances”

The Nobel Prize in Chemistry 1935

Irène Joliot-Curie

“in recognition of their synthesis of new radioactive elements”

The Nobel Prize in Chemistry 1911

Marie Curie, née Skłodowska

“in recognition of her services to the advancement of chemistry by the discovery of the elements radium and polonium, by the isolation of radium and the study of the nature and compounds of this remarkable element”

6 and 7



Few Considerations:

The first Nobel Prize in Chemistry was awarded for the first time 119 years ago and this year, for the first time in history, two women won without sharing the prize with a man.

During her acceptance speech, Emmanuelle Charpentier said she *hopes girls and young female scientists “understand that nothing is impossible”. Also this shows that women can be friends and win the Nobel prize!*

Jennifer Doudna said: *“I really hope this is breaking the glass ceiling so that in the future it’s not surprising that two women or more win awards”*

Andrea Ghez said that *“there were always people who said you cannot do this because you are a girl, so I kind got used to this”*. When the project that earned the Prize was first declined she was not worried because she was used to rejection and used to overcoming other’s skepticism. She said: *“I think it’s really important for women to support women”*



Few More Current Facts:

- The day after the Nobel announcement another “first” for women in leadership happened:
→the vice presidential debate in the USA between the First Jamaican-Indian Woman in this role and the current Vice-president.

She had to say: **“I am speaking”** several time because she was being interrupted by her opponent.

- **From Nature 583,867-869 (2020):** *“The career cost of COVID-19 to female researchers, and how Science should respond”* :

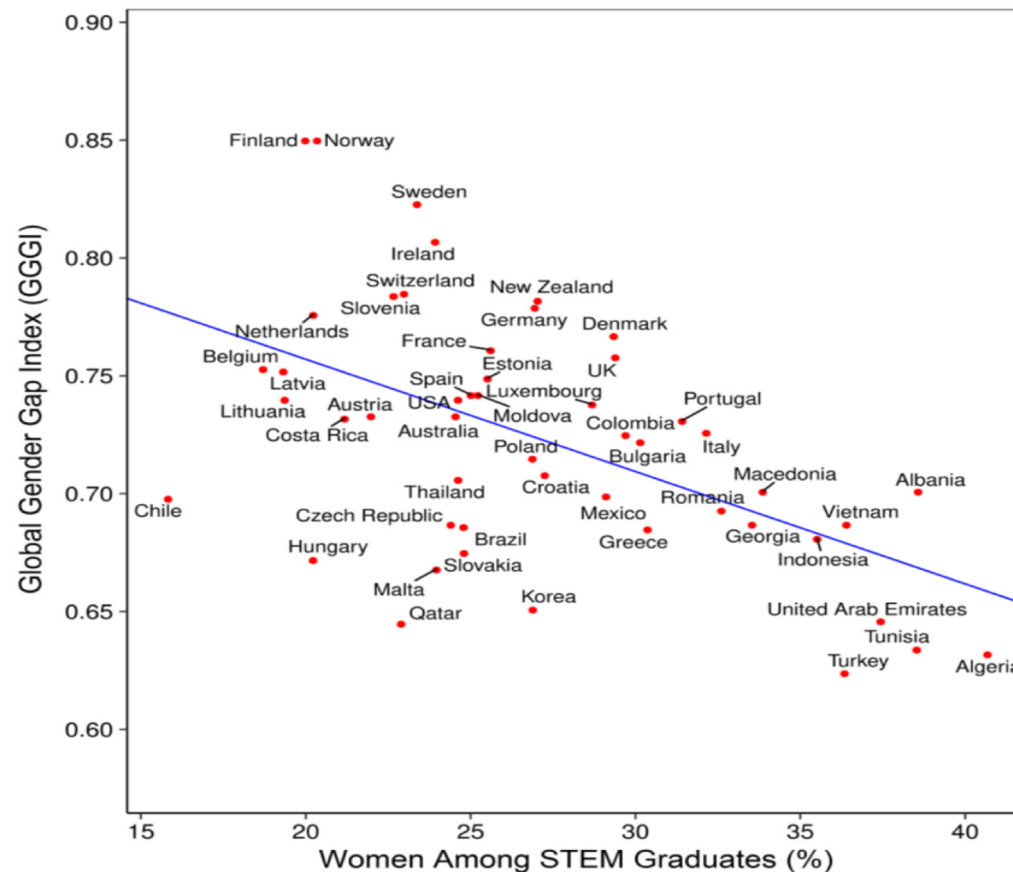
- 1- drop in publications
- 2-higher risk of losing their job
- 3-caregiving role at home for children and parents

→*Ad-hoc committee of the US National Academies of Sciences, Engineering and Medicine will take a fast-track study focused on early indicators of the potential impact of COVID-19 On the career of women in STEM.*



The Gender-Equality Paradox in Science, Technology, Engineering, and Mathematics Education

The percentage of women with STEM degrees is lower in more gender-equal countries, as measured by the WEF [Gender Gap Index](#). Image from [Stoet & Geary, 2018](#).



Conclusions and Reflections



- Something is happening for Women in STEM! The existence of “institutional” problems and disadvantages are recognized and actions are taken (seriously) to change!
- Programs like “MINERVA” In Germany (Max Plank), for example, is dedicated to young women and proposes flexible working conditions and a “kinder garden” for young children. In 10 years the number of women researched has doubled! I know similar initiatives are happening in other labs like PSI, Zurich.
- Also the study in the USA to understand the difference COVID-19 has made for women researchers is promising.
- Finally, recognition for women’s excellence in scientific research is expressed at last!
- The next step will be to promote an alternative, “**women-way**” to do research, where “collaborating” in a different, more effective and friendly way might emerge.

IEEE WIE is in a good position to offer the right global forum for this to happen.

More Information at

<https://wie.ieee.org>

&

<https://ieee-npss.org/women-in-engineering-wie/>

Email: women@ieee.org



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