

A booklet of biographies of Women after whom the various virtual rooms of the ICWIP 2023 Conference have been named

ICWIP2023

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Agnes Pockels

February 14, 1862 – November 21, 1935

Agnes Pockels was a German scientist, who initiated the field of surface science, which describes the properties of liquid and solid surfaces and interfaces.

Pockels was an autodidact. She was not a paid, professional scientist and had no institutional affiliation and so is an example of a citizen scientist. Pockels became interested in research in surface science through observations of soaps and soapy water in her own home while washing dishes.

She devised a surface film balance technique to study the behavior of molecules such as soaps and surfactants at air-liquid interfaces. From these studies, Pockels defined the "Pockels Point" which is the minimum area that a single molecule can occupy in monomolecular films.



Anandibai Joshi

31 March 1865 – 26 February 1887

Anandibai Gopalrao Joshi was the first Indian female doctor of western medicine. She was the first woman from the erstwhile Bombay presidency of India to study and graduate with a two-year degree in western medicine in the United States.

She was married at the age of nine to Gopalrao Joshi, a widower almost twenty years her senior. At the age of fourteen, Anandibai gave birth to a boy, but the child lived only for a total of ten days due to lack of medical care. This proved to be a turning point in Anandi's life and inspired her to become a physician.

Despite practicing medicine for only two to three months, she rose to fame for her sheer determination and hardwork, to become the first Indian female to study western medicine, becoming an inspiration to all others who came after her.



Anna Mani

23 August 1918 – 16 August 2001

Anna Mani was an Indian physicist and meteorologist, known as the weather women of India. She retired as the Deputy Director General of the Indian Meteorological Department.

Mani worked under Prof. C V Raman, researching the optical properties of ruby and diamond but could not get the PhD due to technicalities.

She standardized the drawings of close to one hundred weather instruments, making India independent in weather instruments. In 1957-58, she set up a network of stations to measure solar radiation.

In 1963 at the request of Vikram Sarabhai, she successfully set up a meteorological observatory and an instrumentation tower at the Thumba Rocket Launching Facility.

She was associated with the Indian National Science Academy, American Meteorological Society, International Solar Energy Society, World Meteorological Organisation, and the International Association for Meteorology and Atmospheric Physics. In 1987, Mani was a recipient of the INSA K. R. Ramanathan Medal.



Ann Nelson

29 April 1958 – 4 August 2019

Ann Nelson was a renowned theoretical physicist who specialized in elementary particle physics, and had been at the University of Washington since 1994.

She was a member of the National Academy of Sciences and the American Academy of Arts and Sciences, and was a recipient of the J. J. Sakurai prize for theoretical Particle Physics.

She was also a passionate advocate for inclusion and diversity in Physics, penning this article in *Physics Today*.



Bibha Chowdhuri

3 July 1913 – 2 June 1991

Bibha Chowdhuri was an Indian physicist. She got her PhD in Manchester under the supervision of Prof. Blackett. Prior to that she had worked at Bose Institute with Prof. D.M. Bose, one of the pioneers of the cosmic ray research in India, where she made a significant contribution towards the discovery of mesons using photographic plates. She is the first woman experimental particle physicist in India

The IAU has re-christened the star HD 86081 (a yellow-white dwarf star in the constellation Sextans south of the celestial equator) as Bibha after her.



Carolyn Parker

14 November 1917 – 17 March 1966

Carolyn Parker was a physicist who worked from 1943 to 1947 on the Dayton Project, the polonium research and development arm of the Manhattan Project.

Parker is the first African-American woman known to have gained a postgraduate degree in physics.

She was one of a small number of African American scientists and technicians on the Manhattan Project.

She then became an assistant professor in physics at Fisk University. Parker earned two master's degrees, one in mathematics from the University of Michigan in 1941 and one in physics from MIT in 1951.

According to family, her completion of a doctorate in physics at MIT was prevented by the leukemia that would kill her at age 48. Leukemia was an occupational risk for workers on the Dayton Project.



Chien-Shiung Wu

31 May 1912 – 16 February 1997

Chien-Shiung Wu was a Chinese-American particle and experimental physicist who made significant contributions in the fields of nuclear and particle physics.

She is best known for conducting a novel experiment, which proved that parity is not conserved. This discovery resulted in her colleagues Tsung-Dao Lee and Chen-Ning Yang winning the 1957 Nobel Prize in Physics, while Wu herself was awarded the inaugural Wolf Prize in Physics in 1978.

Wu also worked on the Manhattan Project, where she helped develop the process for separating uranium into uranium-235 and uranium-238 isotopes by gaseous diffusion.



Deborah S Jin

15 November 1968 – 15 September 2016

Deborah S Jin, American physicist, was a pioneer in polar molecular quantum chemistry.

From 1995 to 1997 she worked with Eric Cornell and Carl Wieman at JILA, where she was involved in some of the earliest studies of dilute gas Bose-Einstein condensates.

In 2003, Dr. Jin's team at JILA made the first fermionic condensate, a new form of matter. She used magnetic traps and lasers to cool fermionic atomic gases to less than 100 billionths of a degree above zero, successfully demonstrating quantum degeneracy and the formation of a molecular Bose-Einstein condensate.

In 2002, Discover magazine recognized her as one of the 50 most important women in science.



Emmy Noether

23 March 1882 – 14 April 1935

Amalie Emmy Noether was a German mathematician who made many important contributions to abstract algebra.

She studied mathematics at the University of Erlangen. She completed her doctorate in 1907 under the supervision of Paul Gordan, she then worked at the Mathematical Institute of Erlangen without pay for seven years. In 1915, she was invited by David Hilbert and Felix Klein to join the mathematics department at the University of Göttingen.

Noether's theorem, which shows that a conservation law is associated with any differentiable symmetry of a physical system, was proved by her. It had a significant effect upon classical and quantum mechanics.

In 1932 Emmy Noether and Emil Artin received the Ackermann–Teubner Memorial Award for their contributions to mathematics. However, she was not elected to Göttingen Gesellschaft der Wissenschaften (academy of sciences) and was never promoted to the position of Ordentlicher Professor.



Hema Ramachandran

12th January 1962 – 24th November 2020

Hema Ramachandran a renowned scientist and one of the founding members of Light matter physics department in Raman Research Institute (RRI), Bengaluru, India. She served as Head, Research Facilities at RRI.

Her research accomplishments include pressure-induced amorphization, random lasers, quantum walks of light, imaging through turbid media. She has been an inspirational role model for young researchers, especially women.

She also received INSA Young Scientist Award 1992.



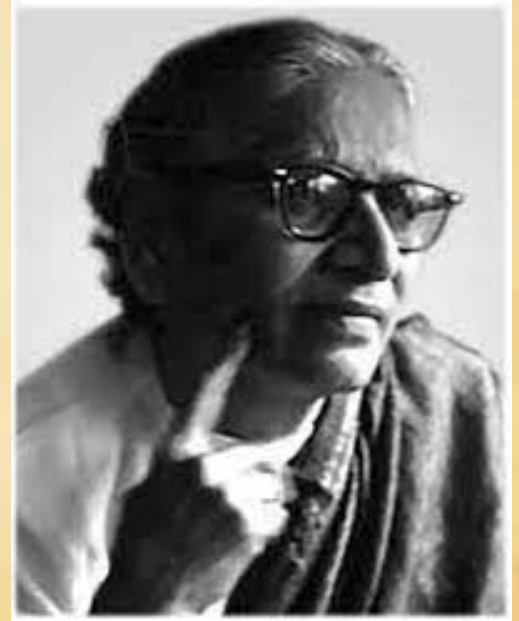
Irawati Karve

15 December 1905 – 11 August 1970

Irawati Karve was a pioneering Indian sociologist, anthropologist, educationist and writer from Maharashtra, India. She has been claimed to be the first female Indian Sociologist.

She founded the department of anthropology at what was then Poona University (now SavitriBai Phule University, Pune).

Her book *Yuganta*: The end of an epoch, a study of the main characters of the Mahabharata, treats them as historical figures and uses their attitudes and behavior to gain an understanding of the times in which they lived. The book won the 1967 Sahitya Academy award.



Laura Bassi

October 29, 1711 – February 20, 1778

Laura Bassi was an Italian physicist and academic. Recognized and depicted as "Minerva" (goddess of wisdom), she was the first woman to have a doctorate in science, and the second woman in the world to earn the Doctor of Philosophy degree.

Working at the University of Bologna, she was also the first salaried female teacher in a university. At one time the highest paid employee of the university, by the end of her life Bassi held two other professorships.

She was also the first female member of any scientific establishment, when she was elected to the Academy of Sciences of the Institute of Bologna in 1732 at 21.

Bassi became the most important populariser of Newtonian mechanics in Italy.

She was inducted by the Pope to the Benedetini as an additional member in 1745. She took up the Chair of Experimental Physics in 1776, the position she held until her death.



Lise Meitner

7 November 1878 – 27 October 1968

Lise Meitner was an Austrian physicist, who played a key role in the discovery of the nuclear fission.

In 1905, Meitner became the second woman from the University of Vienna to earn a doctorate in physics and was the first woman to become a full professor of physics in Germany.

While working on radioactivity at the Kaiser Wilhelm Institute of Chemistry in Berlin, she discovered the radioactive isotope protactinium-231 in 1917.

In mid-1938, Meitner with chemists Otto Hahn and Fritz Strassmann at the Kaiser Wilhelm Institute found that bombarding thorium with neutrons produced different isotopes, which was understood as breaking of a nucleus, termed by her as “nuclear fission”

Unfortunately, her seminal contribution was overlooked and she did not receive the Nobel Prize. Her contribution was recognized in later years and she was given some recognition.



Marietta Blau

29 April 1894 – 27 January 1970

Marietta Blau was an Austrian physicist is well known for her work in the field of cosmic rays, being the first scientist to use nuclear emulsions to detect neutrons.

She got a PhD in 1919, on the absorption of gamma rays. Her main interest was the development of the photographic method of particle detection. The methodical goals which she pursued were the identification of particles, in particular alpha-particles and protons, and the determination of their energy based on the characteristics of the tracks they left in emulsions. Her work on nuclear emulsions significantly advanced the field of particle physics.

She was awarded the Lieben Prize by the Austrian Academy of Sciences. In 1962, the Erwin Schrödinger Prize of the Austrian Academy of Sciences. However, an attempt to make her also a corresponding member of the Academy was not successful.



Meenakshi Narain

9 May 1964 – 1 January 2023

Meenakshi Narain was an Indian-born American experimental physicist. She was a Professor of Physics and Chair of the Department of Physics at Brown University, and was also Chair of the Collaboration Board of U.S. institutions in the Compact Muon Solenoid (CMS) Collaboration.

Narain was a Fellow of the American Physical Society. She had been a Wilson Fellow at Fermilab and had received a Professional Opportunities for Women in Research and Education grant, Major Research Infrastructure grants, and the CAREER Award from the National Science Foundation.

She was also a recipient of the Outstanding Junior Investigator Award from the US Department of Energy.



Mrinalini Sarabhai

11 May 1918 – 21 January 2016

Mrinalini Vikram Sarabhai was an Indian classical dancer, choreographer and instructor.

She was the founder and director of the Darpana Academy of Performing Arts, an institute for imparting training in dance, drama, music and puppetry, in the city of Ahmedabad, India.

She received Padma Shri in 1965 and Padma Bhushan in 1992 and many other citations in recognition of her contribution to art.



Purnima Sinha

12 October 1927 – 11 July 2015

Purnima Sinha was an Indian physicist and was one of the first Bengali women to receive a doctorate in Physics.

She was raised by a progressive family in a traditional era.

She built an X-ray setup, and went on to study different types of clay from all over India. Later on, she joined the Biophysics Department at Stanford University's 'Origin of Life' project, which had an interface with her work.

She compared the X-ray structure of clay with DNA patterns, geometrically, and was fascinated to find a connection.

She did tremendous work in the field of x-ray crystallography of clay minerals.



Rosalyn Yalow

19 July 1921 – 30 May 2011

Rosalyn Sussman Yalow became a physicist at a time when being a woman was a serious impediment to success.

But with her research partner Solomon Berson, she made a transformative contribution to medical research : radioimmunoassay, a method for measuring concentrations of substances in the blood.

She was the co-winner of the 1977 Nobel Prize in Physiology or Medicine (together with Roger Guillemin or Andrew Schally) for development of the radioimmunoassay technique.

She was the second woman (after Gerty Cori), and the first American-born woman, to be awarded the Nobel Prize in Physiology or Medicine.



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- Compilation:
 - Rukmani Mohanta
 - Aditi Sen De
 - Varchaswi Kashyap
- Editing: Upasana Gupta
- Designing: V Madhurima