

CURIE_MEITNER_LAMARR_INDIVISIBLE



The Research School of Physics & Engineering at The Australian National University together with the Austrian Embassy, Canberra, proudly presents *Curie_Meitner_Lamarr_indivisible* by the 'portraittheater' from Vienna, Austria. This highlights three outstanding women in the field of science and technology, whose achievements still affect our lives today. Their triumphs and struggles are brought to life in this performance illustrating their passion and ground-breaking research.

Actress: Anita Zieher

Director: Sandra Schüddekopf

The event is proudly sponsored by
The Australian National University
and the Austrian Embassy Canberra.



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Marie Curie

The supreme principle is not to allow anything to get you down, not from people, nor from events.

In 1867 on November 7th Marya Sklodowska was born in Warsaw. Her father worked as a mathematics and physics teacher and her mother taught at a private school. The family called her "Mania".

In 1883 she graduated from the Lyzeum with honors. Although forbidden in the Russian regime, she secretly learnt and read Polish. Through bad investments the family lost nearly all their savings.

In 1883 she took a job as governess to finance the medical education of her older sister in Paris. Unsalariated and in secret she read Polish literature to working women at the Polish-national oriented "Free University" in Warsaw.

In 1885 she worked as a tutor in the countryside for the Zorawski family in Szczuki. With the help of the eldest daughter she taught farmers' children to read and write. She fell in love with the eldest son of the family, but their wedding plans were abandoned at his family's insistence. 1889 she changed to a new family at the Baltic seaside.

In 1891 she followed her sister to France, who now supported her.

From **1891** she studied mathematics and physics at the Sorbonne in Paris.

In 1893/94 she was the first woman to finish her studies at the Sorbonne with the "License of Physical Sciences". In the final examination she received the best results in physics and was second best in mathematical sciences. She became a PhD student with Antoine Henri Becquerel.

In 1895 on 25th of July she was married to the physicist Pierre Curie (born 1859). They worked together in a makeshift laboratory under difficult circumstances.

In 1896 the couple started to study the radiation of the element Uranium, which Becquerel discovered the same year. They examined, amongst others, the mineral "pitchblende".

In 1897 their daughter Irène was born (who, in 1935, together with her husband Frédéric Joliot-Curie, received the Nobel Prize in Chemistry)

In 1898 she discovered two new elements: polonium and radium, whose radiation she called "radioactive".

From **1900** onwards she taught physics at the École Normale Supérieure for girls in Sèvres, France.

In 1903 she received her doctorate in physics. Together with Becquerel, Marie and Pierre Curie were awarded the Nobel Prize for physics. Marie was the first woman, to receive the Nobel Prize, but only after the intervention of a member of the committee.

In 1904 their daughter Ève was born. Publication of Marie's fundamental treatise on radioactivity: "Investigations of radioactive substances".

In 1906 on 19th of April her husband died in an accident with a horse and cart. She took over his lectures and became the first woman to teach at the University of Sorbonne. In her inaugural lecture on 5 November the auditorium was overcrowded.

In 1908 She obtained the titular Professorship for physics at the Sorbonne.

In 1911 Marie Curie applied for Membership at the “Académie des sciences”. In the same year her affair with Paul Langevin was made public and the popular daily press published articles, in which she was personally attacked. A public campaign started against her. She was not accepted into the academy.

In 1911 In December she travelled to Stockholm to receive the Nobel Prize for Chemistry for the Isolation of the elements polonium and radium.

In 1914 she was head of the radium Institute at the University of Paris.

Between 1914 and 1918, together with her daughter Irène, she developed a mobile X-radiography station for use during the First World War. Curie herself worked in these X-ray-carts and taught her daughter Irene and 150 other female technicians. More than a million X-ray images were taken during the war.

1918-1927: Research activities with her daughter at the Radium Institute in Paris. Under her leadership the institute developed into a center of Nuclear Physics. She lectured in Brazil, Spain, Belgium and Czechoslovakia and obtained numerous awards and honors.

In 1921 the American journalist Miss Meloney raised money to buy radium for Marie Curie. Accompanied by her daughters she travelled through the USA. The president of the United States gave her the symbolic sum of 100,000 US Dollars, enough money for one gram of radium.

In 1922 she became a member of the Medical Academy. She concentrated on research into radioactive substances and searched for their medical properties.

In 1934 on 4th of July Marie Curie died in Sancellemoz (Savoy) as a result of radiation sickness – a consequence of her many years of contact with high-dose radioactive elements.

Lise Meitner

I love physics with all my heart. I can't imagine my life without it. It is a kind of personal love, just like towards a human being you are indebted to.

In 1878 on 17th of November Elise Meitner was born in Vienna as the daughter of the Lawyer Philipp Meitner and his wife Hedwig. Due to a later mistake her date of birth is recorded as 7th of November. As usual in many Jewish families at the time, the children visited the religion classes of the evangelical church. At the age of 30 she converted to Protestantism.

In 1901 she passed an external Matura (Austrian high school certification). She prepared for this exam with Arthur Szarvassi, a lecturer at the institute of physics at the University of Vienna. At the same time she concluded her training as a French teacher.

In 1901-1906 she studied mathematics, physics and philosophy at the University of Vienna and attended lectures by Ludwig Boltzmann.

In 1906, as the second woman ever, she received her doctorate in physics at the University of Vienna. She wrote her doctoral thesis with Franz Exner about thermal conduction in inhomogeneous bodies.

In 1907 she worked at the institute of Stefan Meyer und wrote her first publication on Alpha and Beta radiation. To receive advanced training she moved to Berlin, where she attended the lectures of Max Planck and was included in his circle of friends. Through his daughters she became a friend of the geneticist Elisabeth Schiemann, with whom she continued an intensive exchange of letters over the decades. She conducted her experimental work with Otto Hahn at the chemical institute, with whom she cooperated for more than 30 years. But as a woman she was not allowed to enter the institute, she had to enter her working space through a back entrance. She worked there unpaid as a guest.

In 1909, together with Hahn, she discovered the radioactive recoil when sending Alpha radiation. She presented her discovery to the physical society.

1912: Further cooperation with Hahn at the newly founded institute for chemistry of the Kaiser-Wilhelm-society in Berlin. She became the first woman to receive an assistantship at a Prussian University.

In 1913 she was accepted as a scientific member of the Kaiser-Wilhelm-Institute for chemistry.

In 1915 during the First World War she worked as an X-ray nurse at a frontline hospital.

In 1917 she became head of the radio physical department at the Kaiser-Wilhelm-Institute for chemistry.

In 1918, together with Hahn, she discovered the element protactinium. She applied herself especially to the examination of Alpha-, Beta- and Gamma radiation and the associated nuclear processes, which finally brought her international recognition.

In 1922 Meitner was the first woman to habilitate in physics in Berlin.

In 1926 Meitner was promoted to the position of an extraordinary professorship in Berlin.

In 1933 the newly installed NSDAP withdrew her professorship.

In 1934 Meitner, Hahn and Fritz Straßmann (1902-1980) began their research on transuranic.

1938 July: after the annexation of Austria to the German Reich, Meitner, as an Austrian citizen, was affected by the Nuremberg laws on racism. She escaped through the Netherlands to Sweden, where she found modest employment at the Nobel-Institute of Physics.

1938 December: Otto Hahn and Fritz Straßmann discovered nuclear fission. In an intensive correspondence they exchanged ideas with Meitner about the possible explanation of the results.

1939 January: Meitner and her nephew, the physicist Otto Robert Frisch provided the first theoretical interpretation of nuclear fission and established the term "Nuclear fission".

In 1945, after the atomic bomb was dropped on Hiroshima and Nagasaki Meitner was called "mother of the atomic bomb" in newspaper articles.

In 1946 she held guest lectures at the catholic University of Washington and was voted "Woman of the year" by the American press. Hahn belatedly (for 1944) received the Nobel Prize in chemistry for the discovery of nuclear fission.

In 1947 she obtained a research professorship at the technical University of Stockholm.

In 1948 she took on the Swedish citizenship, but kept her Austrian citizenship. She became a corresponding Member of the Austrian Academy of Sciences.

In 1949 she received the Max Planck medal of the German Physical Society (together with Otto Hahn).

1955: Otto Hahn Prize.

1958: Honorary Citizenship of Vienna.

In 1960 she retired and relocated to Cambridge (Great Britain).

In 1966 Meitner, Hahn and Straßmann were awarded the Enrico-Fermi-prize of the Atomic Energy Commission of the USA.

1967: Decoration for Science and Art of the Republic of Austria.

In 1968 on the 27th of October Lise Meitner died in Cambridge. In 1992 the element 109 was named "Meitnerium" in her honor.

Hedy Lamarr

Any girl can be glamorous. All you have to do is stand still and look stupid.

In 1914 Hedwig Eva Maria Kiesler was born in Vienna on the 9th of November. By mistake an official registered the 9th of September instead of the 9th of November as her date of birth, but this was corrected. Her father Emil Kiesler was a bank manager, her mother a concert pianist. First they lived in the 2nd district, later in the 19th district of Vienna.

In 1930 Hedy sneaked out of school regularly to work as a script girl at the Sascha film company. After breaking off school she played her first small role in a film. By her third movie with Heinz Rühmann and Hans Moser she was already playing a leading role. Max Reinhardt spotted her for the theatre and called her "the most beautiful woman in Europe". At the "Theater an der Wien" she played the role of "Sissi". She moved to Berlin, where she worked with Max Reinhardt.

In 1932 she accepted a role in the Czech-Austrian film "Symphonie der Liebe" ("Ekstase"), which caused a scandal because of her nude scene. A love scene in particular, showing her sexually aroused face during orgasm, caused a stir.

In 1933 she married the rich Viennese Industrialist Fritz Mandl, the boss of the Hirtenberger ordnance factory and interrupted her acting career. Due to her wedding she converted from Judaism to Catholicism. At their residence – the castle Schwarzenau in Lower Austria – many VIP's like Ödön von Horwath or the couple Franz and Alma Werfel are seen. Mandl did business both with the German National Socialists and with Fascist Italy. At business meetings on weapons she remained a silent, but attentive listener. In 1937 she left her husband. All in all she married six times (Fritz Mandl, Gene Markey, Sir John Loder, Teddy Stauffer, W. Howard Lee, Lewis J. Boles) and also had numerous affairs. She was the mother of three children.

In 1937 she met Louis B. Mayer, the chief of MGM Film, in London. They travelled on the same ship to New York and he gave her a 7-year contract with MGM. She assumed the name Hedy Lamarr (as an homage to the silent film star Barbara La Marr). MGM commercialised her as "the most beautiful woman in the world".

In 1938, due to her role in “Algiers” beside Charles Boyer, she gained great fame. Virtually overnight every actress copied her center-parting hairstyle and brunette became the fashion colour of the late thirties. Wearing a hat or a headgear became her hallmark. She made numerous films, amongst others together with Spencer Tracy, Clark Gable, James Stewart and Judy Garland.

In 1942 during the Second World War she sided with the Allies and collected money for war bonds. Together with the composer George Antheil she developed a patented Radio remote control for torpedoes: They adapted a system, which he had developed for one of his works for 16 mechanical pianos and, using identical punch cards, to carry out simultaneous frequency changes. With the help of a professor of electrical engineering at the California Institute of Technology they prepared the patent for registration. On 11th of August 1942 permission was granted by the patent office but the US military did not use the patent before the Cuba crisis. Today this simultaneous frequency change (“frequency hopping system”) is used for Bluetooth connections and Wifi.

In 1949 she landed her biggest commercial success with the film “Samson and Delilah”, which was directed by Cecil B. DeMille. Afterwards she founded her own production company.

In 1953 she took on the US Citizenship.

In 1958 she played her last role in a film, although occasionally she acted as a guest in several TV shows.

In 1966 She was reported to the police because of shoplifting. The Jury acquitted her and she sued the owner of the shop, the May Corporation. In 1991 she was arrested in Florida again because of shoplifting but the charge was dropped because of her age. Her Autobiography appeared – she sued the ghostwriter because of its content.

In 1997 the Electronic Frontier Foundation awarded her the EFF Pioneer Award in honor of her and Antheil’s invention, followed by further awards, which her son Antony Loder accepted for her.

In 2000, on 19th of January, she died in Altamonte Springs, Florida. Some of her ashes were scattered in a piece of woodland in Vienna according to her wish. In Germany, Austria and Switzerland Inventor’s Day is nowadays celebrated on 9th of November – her date of birth.

Reviews „Curie_Meitner_Lamarr_indivisible“

„Zieher delivers a brilliant performance in the roles... it is a theatre evening with many claims: it should be informative, amusing and encouraging – the team of portraittheater indeed succeeded in all of that.“ (European Cultural News)

„How often do you have the chance to acquaint you so hands-on with the biography of three extraordinary women and to learn something about radioactivity?... Zieher and her team manage it in an entertaining and vivid way to bring elementary questions like ‚what happens at the fission‘ or ‚who is the discoverer of it‘ closer to the audience....Conclusion: An informative and amusing evening with a wink.“ (Vienna International)

“What do Marie Curie, Lise Meitner and Hedy Lamarr have in common? All three of them were pioneers in science, and even if their biographies are very diverse, they do have much common ground, as illustrated in the deeply absorbing new play.“ (Der Standard)

Cast

portraittheater

The Viennese association focuses on extraordinary persons, especially women, and brings their life and work to the stage. Since 2006 plays about Hannah Arendt, Simone de Beauvoir, Rosa Luxemburg, Bertha von Suttner, George Sand, Marie Curie, Lise Meitner and Hedy Lamarr were successfully performed in many countries.

Sandra Schüddekopf, director. Over the period from 2001-2005 she worked as an assistant director at Burgtheater, Vienna. Since 2005 she has worked as a freelance director at Schauspielhaus Graz, Theater Drachengasse, Munich Kammerspiele, the Schauspielhaus Vienna and at the Mainz State Theatre, where she won the director's prize in 2009. Since 2008 she heads the Retzhofer Dramapreis.

Anita Zieher, actress, chairwoman of portraittheater. After studying politics and communication in Salzburg she attended an acting school in Vienna. In the productions of portraittheater she played Hannah Arendt, Simone de Beauvoir, Rosa Luxemburg, Bertha von Suttner, George Sand, Marie Curie, Lise Meitner and Hedy Lamarr. She won many prizes in improv theater and as an improv player and comedian.

Stage concept:	Eva-Maria Schwenkel
Costume:	Elke Gattinger
Production assistant:	Susanne Lässig
Videos:	Maria Weber
Girls in the videos:	Johanna Braendle, Carla Götze, Marielies Willensdorfer
Music/videos:	Rupert Derschmidt
Photos:	Reinhard Werner
Text:	Sandra Schüddekopf and Anita Zieher with original quotations of Marie Curie, Lise Meitner and Hedy Lamarr
Co-Production Partner:	Theater Drachengasse
Cooperating with:	TU Wien, Vienna University, Fachhochschule St. Pölten University of Applied Sciences
Scientific board – special thanks to	Institute of Atomic and Subatomic Physics, Vienna (Karin Poljanc), TU Wien (Walter Ehrlich-Schupita, Brigitte Ratzer, Lore Sexl), University of Vienna (Christiane Maria Losert-Valiente Kroon, Walter Kutschera)
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