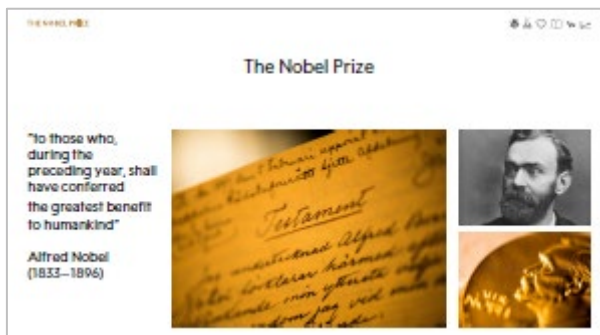


Speaker's manuscript – All Nobel Prizes 2023

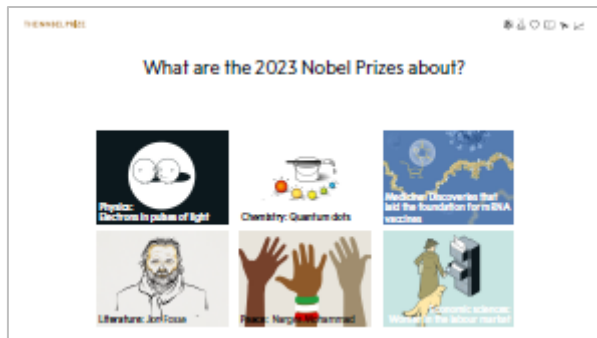
The Nobel Prize

- Before he died on 10 December 1896, Alfred Nobel wrote in his last will that the majority of his fortune was to be used for five prizes given to “those who, during the preceding year, have conferred the greatest benefit to humankind.”
- According to the will, the prize is to be awarded in five categories: physics, chemistry, physiology or medicine, literature and peace.
- The Nobel Prizes were first awarded in 1901.
- In the late 1960s, Sveriges Riksbank (Sweden's central bank) established the Prize in Economic Sciences Prize in Memory of Alfred Nobel.
- The prize in economic sciences is awarded at the same time as the Nobel Prize, as part of the same ceremony on 10 December every year.



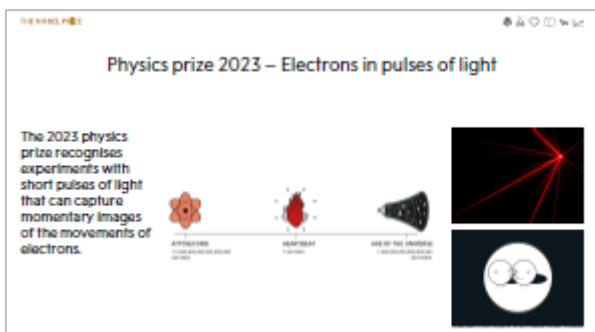
What are the 2023 Nobel Prizes about?

- The Nobel Prizes are announced each year in early October.
- The 2023 Nobel Prizes are about everything from electrons in pulses of light, quantum dots and discoveries that lay the groundwork for mRNA vaccines to Jon Fosse's writing, Narges Mohammadi's fight against the oppression of women in Iran and research on women in the labour market.



The 2023 physics prize – Electrons in pulses of light

- The events in the world around us happen at different scales of time. There is about one second between the beats of a human heart. The movement of the electrons in an atom take about a billionth of a billionth of a second – an attosecond.
- An attosecond is so short that there are as many of them in one second as the number of seconds that have passed since the creation of the universe some 13.8 billion years ago.
- It's very difficult to register such extremely rapid movements. But that is exactly what the researchers who were awarded this year's Nobel Prize in Physics were able to do. They created pulses of light that are short enough to be able to capture snapshots of the movements of electrons.
- Thanks to their work, researchers today are able to explore the details of what happens inside of atoms and molecules. There are also potential practical applications in a variety of fields from electronics to medicine.



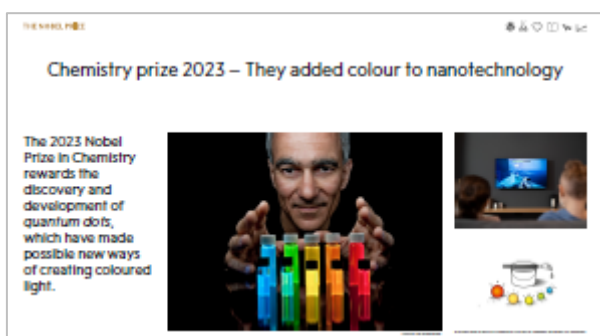
The 2023 physics laureates

- The prize is awarded to three researchers:
- Anne L'Huillier found a new effect of laser light that interacts with the atoms in a gas. She works at Lund University in Sweden.
- Pierre Agostini and Ferenc Krausz demonstrated that this effect could be used to create shorter pulses of light than had previously been possible. That means that researchers today can register the movements of electrons in an atom.



The 2023 chemistry prize – They added colour to nanotechnology

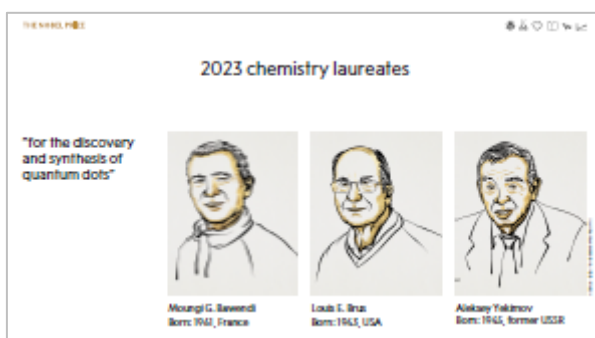
- Nanoparticles are extremely small particles of various substances. To try to understand how small they are, we can compare them to the head of a pin: a nanoparticle is about a million times smaller.



- The 2023 Nobel Prize in Chemistry is awarded for the discovery and development of so-called quantum dots. These are nanoparticles that are so small that their size determines their properties.
- Among other uses, quantum dots have given us new ways of creating coloured light. Today the luminosity of quantum dots is utilised in television and display screens that rely on so-called QLED technology, in which the Q stands for quantum dot. In this kind of screen, blue light is produced with the help of the kind of energy-efficient diodes that were awarded the Nobel Prize in Physics in 2014. Then quantum dots are used to change the colour of some of the blue light to turn it red or green. In this way, we can generate the three basic colours of light that are used to produce all the colours that are needed in a television.
- Doctors have also started researching the possibilities of using quantum dots to locate cancerous tissue in the body.

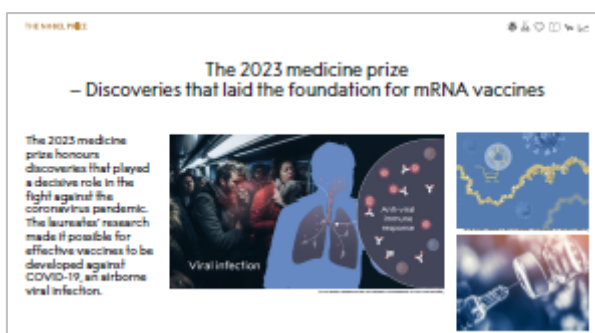
The 2023 chemistry laureates

- The prize is awarded to three researchers:
- Independently of each other, Aleksey Yekimov and Louis Brus have succeeded in synthesising (creating) quantum dots and demonstrating that their size determines their quantum mechanical properties.
- Mounqi Bawendi revolutionised the methods used to create quantum dots so that they can now be made of very high quality. This made it possible for quantum dots to be utilised widely in nanotechnology.



The 2023 medicine prize – Discoveries that laid the foundation for mRNA vaccines

- In early 2020, the world was struck by the Covid-19 pandemic. Effective mRNA vaccines were able to be developed in record time, which has helped save the lives of millions of people.
- A messenger RNA (mRNA) vaccine is made through a technique in which the vaccine is only completed inside the human body after a “map” for the virus protein is introduced into our cells.
- The 2023 medicine prize is awarded for discoveries that lay the groundwork for the development of effective mRNA vaccines in the midst of one of the worst health crises of our time.



- The laureates' ground-breaking research has fundamentally changed our understanding of how mRNA interacts with the immune system. The superior speed with which mRNA vaccines can now be manufactured is paving the way for the development of vaccines for other infectious diseases as well. In the future, mRNA technology can also be used in the treatment of certain forms of cancer.

The 2023 medicine laureates

- The prize is awarded to two researchers:
- Katalin Karikó is a biochemist and has been working with mRNA for a long time.
- Drew Weissman is an immunologist who has long been interested in dendritic cells, which are an important part of the immune system.
- In the 1990s, while they were both working at the University of Pennsylvania in the United States, the two began a collaboration that increasingly came to focus on how mRNA could be used in medicine.



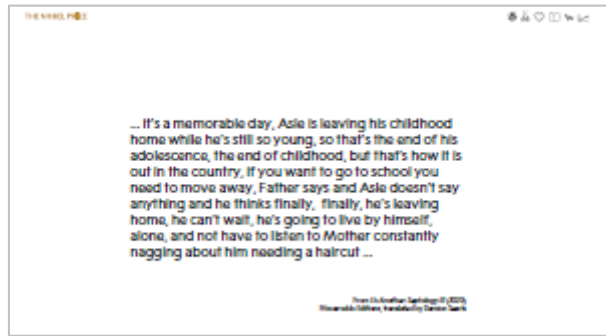
The 2023 literature prize – Jon Fosse

- Norwegian author Jon Fosse is one of the contemporary theatre's most prolific playwrights, and his plays are performed on stages all over the world. But he writes in many other genres as well, and his novels have garnered widespread international acclaim.
- Since his debut in 1983, Fosse has published a great many plays, novels, poetry collections, essays and children's books. His big breakthrough came in 1999 when his play *Someone Is Going to Come Home* was produced in Paris.
- Fosse tells stories that portray powerful emotions that many of us can relate to but that can be hard to put into words – feelings of anxiety, insecurity and disorientation.
- Jon Fosse writes in Nynorsk, which is one of Norway's two official written languages.



Excerpt from *Septology*

- Jon Fosse’s style is usually described as “Fosse’s minimalism”. Often he uses simple everyday phrases that belie a story charged with intense emotions. The language is poetic, replete with recurrence and repetition.
- One of his foremost works in the genre of fiction is the novel *Septology*, which comprises seven parts published in three volumes. It’s a story about two friends and artists who are both named Asle. Their lives look completely different, but at the same time they seem to be two different versions of the same person. Like Fosse’s other novels, *Septology* is written entirely without periods.
- In the third part of *Septology*, the Asle who is not the narrator of the book has become a teenager and is about to move away from home to begin studying at upper secondary school. In the excerpt here, he is saying goodbye to his parents. His father talks about what a big day it is, with his only child leaving home.

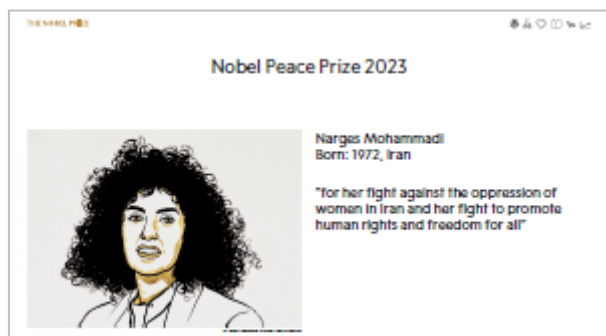


... it's a memorable day, Asle is leaving his childhood home while he's still so young, so that's the end of his adolescence, the end of childhood, but that's how it is out in the country, if you want to go to school you need to move away, Father says and Asle doesn't say anything and he thinks finally, finally, he's leaving home, he can't wait, he's going to live by himself, alone, and not have to listen to Mother constantly nagging about him needing a haircut ...

From *I Is Another: Septology III* (2020)
Fitzcarraldo Editions, translated by Damion Searls

The 2023 peace prize – Narges Mohammadi

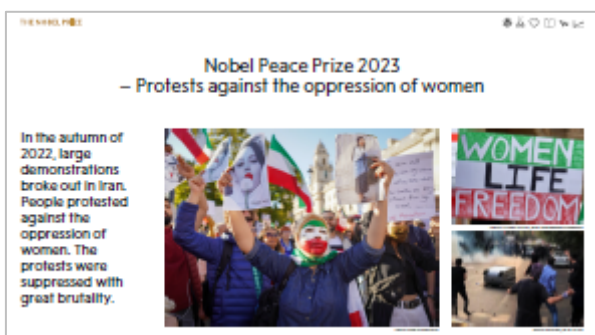
- The 2023 Nobel Peace Prize is awarded to Narges Mohammadi for her fight against the oppression of women in Iran and her efforts to promote human rights and freedom for all.
- Narges Mohammadi started working for equality in the 1990s while she was still a student in physics. After completing her studies, she worked as an engineer and a writer for various reform-minded newspapers.



- In 2003, she became active in the Center for Human Rights Defenders in Tehran, the capital of Iran. The group was founded by another Iranian woman, the attorney Shirin Ebadi, who has also been awarded the Nobel Peace Prize.
- Narges Mohammadi has paid a high price for her brave fight. The authorities in Iran have arrested her thirteen times in all. She has been sentenced five times to a total of 31 years and 154 lashes. She has not seen her children since 2015, when both of them were eight years old.
- At the time of the announcement of the 2023 peace prize, Narges Mohammadi was still in prison.

The 2023 peace prize – Protests against the oppression of women

- From her prison cell, Narges Mohammadi has expressed support for the demonstrations that began in the autumn of 2022 in Iran. Hundreds of thousands of people demonstrated against the oppression of women by the government regime. The demonstrators united around the slogan *Zan – Zendegi – Azadi*, meaning Woman – Life – Freedom.
- The protests have been brutally suppressed by the regime. Many people have been killed or injured.



Economic sciences prize 2023 – Women in the labour market

- Women earn less than men on average for the same work. Why is that?
- The research that has been awarded the 2023 prize in economic sciences has given us answers to that question. The prize is about women in the labour market, both in the past and in the present.
- Prior to the 1970s, most women were expected to be employed for only a short period before getting married, so there was seldom reason for them to become as well-educated as men. That changed in the late 1960s, and one of the important factors driving that change was the introduction of birth control pills.
- Expectations changed: women began marrying later, delaying pregnancy, and becoming better educated than earlier generations.
- Today the disparity in earnings between men and women is usually small early in their careers, but when women give birth to their first child, that trend is disrupted. Their earnings decline and then do not rise again at the same pace as for men even when they have the same education and do the same job.



- Understanding why there are gender differences in the labour market is fundamentally about making the most of society's resources.
- Claudia Goldin has confided that she has wanted to be a detective ever since she was a child and that she now sees herself as one. As a researcher, she does her detective work by combing through huge volumes of data in the archives.

The 2023 economic sciences laureate

- Claudia Goldin was the first to give a comprehensive account of the role of women in the labour market. Her research sheds light on the driving forces behind historical changes and identifies the primary causes of the difference in outcomes between genders that still persists today.
- Thanks to Claudia Goldin's research, we know much more about the underlying factors and the barriers that need to be overcome in the future.



The awarding of the Nobel Prize

- The Nobel Prizes are awarded every year on 10 December. Alfred Nobel died on 10 December 1896.
- Each prize includes a medal, a diploma, and a large sum of money. In 2023, the prize amount is 11 million Swedish kronor, or about one million dollars.
- The award ceremony is held in Sweden at the Stockholm Concert Hall for all categories except the peace prize, which is awarded at City Hall in Oslo, Norway.
- The awarding of the prizes is followed by a festive banquet to celebrate the year's Nobel Prize laureates.

