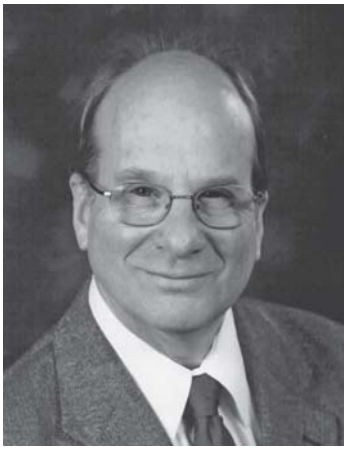
NOBEL PRIZES: 2023

CHEMISTRY

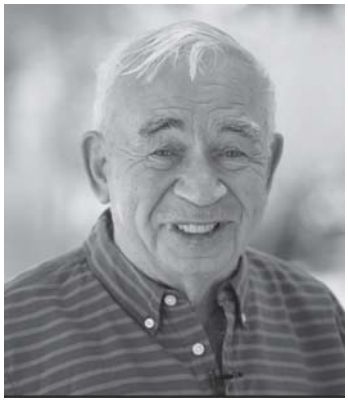
The Nobel Prize in Chemistry for 2023 was awarded jointly to Professor Moungi G. Bawendi, Massachusetts Institute of Technology, Cambridge, MA, USA, Louis E. Brus, Columbia University, New York, NY, USA and Alexei I. Ekimov (or, Aleksey I. Yekimov), Nanocrystals Technology, Inc., New York, NY, USA "*for the discovery and synthesis of quantum dots.*" 'They planted an important seed for nanotechnology' and 'quantum dots are thus bringing the greatest benefit to mankind', announced the Academy. Each of the three Laureates will receive one-third of the 11-million-Swedish-krona (US$1-million) prize. Johan Åqvist, Chair at the Nobel Committee for Chemistry at the Royal Swedish Academy of Sciences in Stockholm said during the announcement, "*For a long time, nobody thought that you could ever actually make such small particles. But this year's laureates succeeded. This achievement represents an important milestone in nanotechnology*."



Louis Brus

Quantum dots are nanoparticles which are so tiny that their properties are determined by quantum phenomena, hence the name 'quantum dots'. "*Quantum dots have given us new opportunities for creating coloured light*", said Johan Jarnestad of the Royal Swedish Academy of Sciences. Quantum dots are useful in televisions, LED lamps, locating tumors during surgery, etc.

Strangely, the names of the winners of the Nobel Prize in Chemistry for 2023 were reported to the Swedish media a few hours before the Academy made the announcement. The Academy said that it was by mistake.



Alexei Ekimov

It is a common knowledge that the properties of an element are governed by the number of electrons around its nucleus. However, when particle sizes get increasingly smaller, the quantum energy levels of their electrons change. When the sizes attain the nanoscale, the electrons start to be confined by the size of their surroundings, the natural volume. Once that size becomes smaller than this natural volume, the electrons respond by changing their energy levels. This, in turn, changes how those systems interact with light. This explains why the particles in the nano-domain show size-dependent colours. This lucid explanation of the genesis of the name 'quantum dots' and their function was given by Christopher Murray, a chemist at the University of Pennsylvania, Philadelphia, who was a former doctoral student of Bawendi during the work on quantum dots by this group in the 1990s.

It has been known since long that size-dependent quantum effects could arise in nanoparticles. But until the discovery and synthesis of quantum dots, it was nearly impossible to sculpt particles in the nano-dimension. It was Ekimov who was the first to report in 1981 the successful demonstration of size-dependent quantum effects in particles in coloured glass doped with copper chloride [A.I. Ekimov and A.A. Onushchenko, *J. Exp. Theor. Phys.. Lett.*, 34, 345-349, 1981]. While studying semiconductor particles for solar energy applications, Brus reported in the very next year the preparation of quantum dots in solution [R. Rossetti and L. Brus, *J. Phys Chem.*, 86, 4470-4472, 1982]. Bruce demonstrated the link between semiconductors and particle size. Indeed, he was the first scientist to prove size-dependent quantum effects in

Moungi Bawendi

particles floating freely in a liquid. But this relatively inaccessible and poorly developed materials system became useful only after Bawendi reported the development of a facile method for the preparation of quantum dots of precisely specific sizes by combining inorganic and organometallic techniques [C.B. Murray, D.J Norris and M.G. Bawendi, *J. Am. Chem. Soc.*, 115, 8706-8715, 1993]. His method involved injecting the chemical ingredients into a hot solvent when the nanocrystals suddenly formed. When the mixture was removed from heat, the growth of the crystals slowed down. The resulting quantum dots were all of the same size and quality.

Quantum dots now illuminate computer monitors and television screens based on QLED technology and have immense potential in flexible electronics, tiny, low-cost optical detectors and sensors (useful in transport industry), thinner solar cells and encrypted quantum communication, etc.

The first reaction of the awardees on hearing the news is worth noting. Ekimov said, "*It was really nice that we got it after 40 years of work.*" Bruce said, "*I certainly was not expecting this. … Basic research is extremely hard to predict exactly how it is going to work out. It's more for the knowledge base than it is for the actual materials. But in this case, it's both.*" Bawendi said that he was "*very surprised, sleepy, shocked, unexpected and very honored. … The motivation really is the basic science. A basic understanding, the curiosity of how does the world work? And that's what drives scientists and academic scientists to do what they do*."

A. Ekimov was born in 1945 in the former USSR. He got his Ph.D. degree in 1974 from Ioffe Physical-Technical Institute, Saint Petersburg, Russia. Formerly, he was Chief Scientist at Nanocrystals Technology Inc., New York, USA. L.E. Brus was born in 1943 in Cleveland, OH, USA. He earned his Ph.D degree in 1969 from Columbia University where he is currently a Professor. M.G. Bawendi was born in Paris, France in 1961, obtained Ph.D. degree in 1988 from the University of Chicago, IL, USA. Currently, he is a Professor at Columbia University.

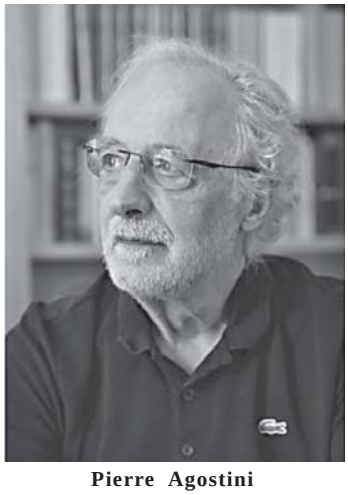
According to Professor Heiner Linke, a member of the Nobel Committee for Chemistry, "*Quantum dots can be seen as one milestone for the whole field of nanotechnology.*" ❐

Manas Chakrabarty
Honorary Secretary, ISNA
e-mail: chakmanas09@gmail.com

PHYSICS

The Nobel Prize in Physics for the year 2023 has jointly been awarded equally to Pierre Agostini, Fernc Krausz and Anne L'Huiller "for experimental methods that generate attosecond pulses of light for the study of electron dynamics in matter" by the Royal Swedish Academy of Sciences.

Mode-locking, is a process by which various harmonic frequency components of a laser light, in a resonant cavity, can add up to a very narrow pulse of light. Initially the simulated Raman scattering (SRS), where phase-locked sideband frequencies has enabled one to get the width of the wave package down to femtosecond time scales. However, the femtosecond width of the laser pulse seemed to be a limiting width which could not be overcome.



Pierre Agostini
(Ohio State University Website)

In 1988 Anne L'Huillier, Ferray, Li, Lompre, Mainfray and Manus, experimentally observed the puzzling generation of ultraviolet (UV) photons when an intense infrared (IR) laser passes through an inert gas. The theoretical

Fernc Krausz
(Wikipedia)

explanation of this higher harmonic generation (HHG) was subsequently provided by Anne L'Huillier, Kenneth Schafer and Kenneth Kulander (1991) for such a scenario. Infrared light is an electromagnetic wave with oscillating transverse electric and magnetic fields, whose frequency is much smaller than the orbital frequency of the electrons in the atom, and can be viewed as quasi-static with respect to the electrons. This electric field of the IR laser light would polarize the inert gas atom causing a decrease in binding energy of an electron in a higher orbital against the electric field, while increasing it in the direction of the field. If the energy of the electron in the higher orbital falls below that of an inner shell electron, then the inner shell electron can tunnel to the higher orbital, which is momentarily in a lower energy state. As the electric field reverses in the IR laser pulse, the tunneled electron would find itself in a higher energy state and would then relax back to the lower state by emitting a UV photon. The release of these UV photons would be in synch with the IR photon and would appear as higher harmonics. Odd harmonics as high as 33 were observed, and this increased the bandwidth of the signal, causing an enormous narrowing of the photon down to 250 attosecond (1 attosecond = 10-18s). Fernc Krausz was the first to generate attosecond light pulse, measured its duration and isolate a 650 attosecond pulse. Pierre Agostini generated 250 attosecond light pulses which could be used in various experiments, including pump-probe methods to

Anne L'Huiller
(Wikipedia)

study fast processes like photoemission delay, electron correlation, etc. Study of features like the effect of motion of the electron in charge transfer process, photo-fragmentation of molecules and also the study of spin dynamics in solid-state physics, etc. are enabled by the advent of attosecond light pulses.

Pierre Agostini (b 1941, Tunis, French Tunisia, France), is an Emeritus Professor at the Ohio State University. He invented the Reconstruction of Attosecond Beating By Interference of Twophoton Transitions (RABBITT) technique and his work in attosecond science and above threshold ionization.

Fernc Krausz (b 1962, Mór, Hungary) is a director at the Max Planck Institute of Quantum Optics and is a professor at the Ludwig Maximilian University, Munich, Germany. He was the first to generate and measure the attosecond light pulse.

Anne L'Huiller (b 1958, Paris, France) is a professor at Lund University, Sweden. She is a member of the Royal Swedish Academy of Sciences and has received various physics awards including the Wolf Prize in Physics (2022). ❐

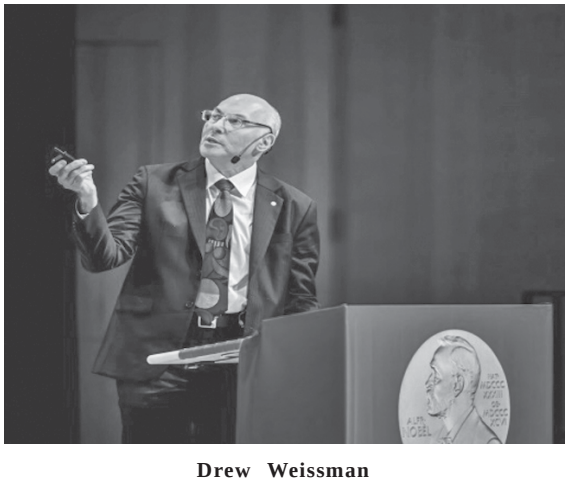
B.K. Chatterjee
ExProfessor of Physics,
Bose Institute,
Kolkata 700009
e-mail: barun_k_chatterjee@yahoo.com

PHYSIOLOGY OR MEDICINE

The Nobel Prize in Physiology or Medicine for 2023 has been awarded jointly to Katalin Karikó and Drew Weissman for their discoveries concerning nucleoside base modifications that enabled the development of effective mRNA vaccines against COVID-19.

Katalin Kariko

Katalin Karikó was born in Szolnok in Hungary in year 1955. On obtaining her PhD from Szeged's University in 1982 she carried out her postdoctoral research at the HungarianAcademyofSciencesin Szeged till 1985. She thereafter carried out further postdoctoralresearchat Temple University, Philadelphia, and the University of Health Science, Bethesda. In 1989, she was appointed as Assistant Professor at the University of Pennsylvania in 1989 and served the institute till 2013. After that, she became vice president and later senior vice president at BioNTech RNA Pharmaceuticals.Since2021,she has been a Professor at Szeged University and an Adjunct Professor at Perelman School of Medicine at the University of Pennsylvania.



Drew Weissman

Drew Weissman was born in Lexington, Massachusetts, USA in1959. He received his MD, PhD degrees fromBostonUniversityin1987.He did his clinical training at Beth Israel Deaconess Medical Center at Harvard Medical School and postdoctoral research at the National Institutes of Health. In 1997, Weissman established his research group at the Perelman School of Medicine at the University of Pennsylvania. He is the Roberts Family Professor in Vaccine Research and Director of the Penn Institute for RNA.

The discoveries by the two Nobel Laureates were critical for developing effective mRNA vaccines against COVID-19 during the pandemic that began in early 2020. Through their ground breaking findings, which have fundamentally changed the understanding of how mRNA interacts with human immune system, the laureates contributed to the unprecedented rate of vaccine development during one of the greatest threats to human health in modern times.

Vaccines before the Pandemic

With the revolution of molecular biology and the development of technologies for recombinant protein production, opportunities for more targeted vaccine approaches arose. The first vaccine produced using this approach was the hepatitis B vaccine (HBV), approved in 1986, which was followed by the approval of the first human papillomavirus (HPV) vaccine in 2006. The HBV and HPV vaccines contain single protein components of the respective virus and are referred to as subunit vaccines. These vaccines protect against virus-induced cancers.

mRNA Vaccines: A Promising Idea

In our cells, genetic information encoded in DNA is transferred to messenger RNA (mRNA), which is used as a template for protein production. During the 1980s, efficient methods for producing mRNA without cell culture were introduced, called *in vitro* transcription. Ideas of using mRNA technologies for vaccine and therapeutic purposes also took off, but roadblocks lay ahead. *In vitro* transcribed mRNA was considered unstable and challenging to deliver, requiring the development of sophisticated carrier lipid systems to encapsulate the mRNA. Moreover, *in vitro*-produced mRNA gave rise to inflammatory reactions.

The Hungarian biochemist Katalin Karikó, was devoted to developing methods to use mRNA for therapy. During the early 1990s, when she was an assistant professor at the University of Pennsylvania, she remained true to her vision of realizing mRNA as a therapeutic agent inspite of encountering difficulties in convincing research funders of the significance of her project. A new colleague of Karikó at her university was the immunologist Drew Weissman. He was interested in dendritic cells, which have important functions in immune surveillance and the activation of vaccine- induced immune responses. Spurred by new ideas, a fruitful collaboration between the two soon began, focusing on how different RNA types interact with the immune system.

The Breakthrough

Karikóand Weissman noticed that dendritic cells recognize *invitro* transcribed mRNA as a foreign substance, which leads to their activation and the release of inflammatory signaling molecules. They wondered why the *in vitro* transcribed mRNA was recognized as foreign while mRNA from mammalian cells did not give rise to the same reaction. Karikó and Weissman realized that some critical properties must distinguish the different types of mRNA.

RNA contains four bases, abbreviated A, U, G, and C, corresponding to A, T, G, and C in DNA. Karikó and Weissman knew that nucleoside bases in RNA from mammalian cells are frequently chemically modified, while *in vitro* transcribed mRNA is not. They wondered if the absence of altered bases in the *invitro* transcribed RNA could explain the unwanted inflammatory reaction. To investigate this, they produced different variants of mRNA, each with unique chemical alterations in their bases, which they delivered to dendritic cells. The results were striking: The inflammatory response was almost abolished when base modifications were included in the mRNA. This was a paradigm change in human understanding of how cells recognize and respond to different forms of mRNA. Karikó and Weissman immediately understood that their discovery had profound significance for using mRNA as therapy. These seminal results were published in 2005, fifteen years before the COVID-19 pandemic.

In further studies published in 2008 and 2010, they showed that the delivery of mRNA generated with base modifications markedly increased prote in production compared to unmodified mRNA. The effect was due to the reduced activation of anenzyme that regulates protein production. Through their discoveries Karikó and Weissman had eliminated critical obstacles on the way to clinical applications of mRNA.

mRNA Vaccines Realized their Potential

Interest in mRNA technology began to pick up, and in 2010, several companies were working on developing the method. Vaccines against Zika virus and MERS-CoV were pursued; the latter is closely related to SARS-CoV-2. After the outbreak of the COVID-19 pandemic, two nucleoside base-modified mRNA vaccines encoding the SARS-CoV-2 surface protein were developed at record speed. Protective effects of around 95% were reported, and both vaccines were approved as early as December 2020.

Several other vaccines against SARS-CoV-2, based on different methodologies, were also rapidly introduced, and together, morethan13 billion COVID-19vaccine doses havebeen given globally. The vaccines have saved millions of lives and prevented severe disease in many more, allowing societies to return to normal conditions. Through their fundamental discoveries of the importance of base modifications in mRNA, this year's Nobel laureates critically contributed to the transformative development during one of the biggest health crises of our time.

Significance of the Work

In globally interconnected society the risk of new pandemics, which are usuallycausedbyzoonoticviruses crossing the species barrier into humans and spread through droplet- or aerosol-mediated transmission, causing airway infections is greater than ever before. Developing and deploying vaccines rapidly enough to mitigate an ongoing pandemic is an enormous challenge that had never been met before the COVID-19 pandemic. The rapid sharing of the SARS-Co

V-2 genome sequence, alongwith extensive prior developments in molecular biology, vaccine research, and drug delivery over the past several decades spurred unprecedented activity among vaccine researchers during 2020. ❐

Shankarashis Mukherjee

Public Health Analytics Unit, (PHAU)
Department of Food and Nutrition,
West Bengal State University
and
Member of the Council, ISNA
e-mail: msasish@yahoo.co.in

ECONOMICS

The Royal Swedish Academy of Sciences has awarded the Nobel Prize (The Sveriges Riksbank Prize in Economic Sciences in Honour of Alfred Nobel) in Economics 2023to Professor Claudia Goldin of Harvard University of the United States of America for uncovering the drivers of gender differences in the labour market and advancing our understanding of the women's labour market outcomes. Her research entwined history and economics to overturn the conventional view that female labour participation is a positive function of development. She used the neo-classical demand-and-supply framework to study the changing female labour market outcomes and long-run evolution of U S gender gaps in employment and earnings.

Professor Claudia Goldin

If women are not assigned to the job best suited to them and according to the skills they have attained then this misallocation will generate inefficiency and ultimately affect the size of the global GDP. Goldin's research successfully addressed the questions why are labour market gender gaps so pervasive around the world today? What explains the variation in the size of these gaps over time and across countries? Is the extent of gender equality primarily a reflection of economic development? Why do gender earnings gaps remain in high-income countries, despite, for example, women being more educated and the adoption of equal pay legislation? Answering these questions is thus related to the question of economic efficiency.

Before 1990 the researchers mainly studied the data from the twentieth century and found a clear association between economic development and number of women in paid employment and that hardly conform to the reality and for the longer term period. This unclear exposition was because of the fact that they have not taken into consideration the proper historical data relating to women's employment. Goldin, on the other hand, uncovered data, for two hundred years, all the way back to the end of eighteenth century and revealed that women's participation in the U S labour force could be described by using a U-shaped curve and demonstrated that there is no historically consistent association between women's participation in the labour market and economic growth. This U-shape is in no way unique to the US and holds true in many other countries.These insights also make it possible to better map and understand women's position in the labour market internationally.

Why U-shaped? Because initially when agrarian activities were dominant women worked in agriculture with their husbands and they also worked in cottage industries or production in the home, with textiles or dairy goods, but their work was not always registered correctly in the historical record. By compiling new databases using historical time-use surveys, industrial statistics and censuses, Goldin was able to correct the data on women's participation in the labour market. She established that the proportion of women in the US labour force was considerably greater at the end of the 1890s than was shown in the official statistics. For example, her corrections demonstrated that the employment rate for married women was almost three times greater than that registered in censuses.

With technological progress and industrialization the U-shaped curve turned despite increased levels of women's education and increased demand for female labour. This was due to social stigma, legislation such as marriage bars and other barriers. Despite an increasing demands for labour. The 1930s' Great Depression and its consequences was not the only reason. She studied the importance of expectations where labour market consists of different generations, cohorts, who faced different circumstances when making their life choices. Goldin developed a cohort-based approach to the analysis of what happens when a cohort enters the labour market. Goldin showed that in periods of rapid development women may make decisions based on expectations that later do not come to fruition. Thirdly she considered the power of the pill and family planning in taking employment decision that also helped in establishing her hypothesis of falling women employment initially. The participation of married women decreased with the transition from an agrarian to an industrial society in the early nineteenth century, but then started to increase withthe growth of the service sector in the early twentieth century. Goldin explained this pattern as the result of structural change and evolving social norms regarding

women's responsibilities for home and family. During the twentieth century Goldin showed that this motherhood effect also explains the nature of the pattern she has envisaged. Women initially abstain and later join the labour force. Because women often take greater responsibility than men for childcare, for example, this makes career progression and earnings increases more difficult. This is also a reason for the gender gap in earnings. Much of the gender gap in earnings could also be explained by differences in education and occupational choices. However, Goldin has shown that the bulk of this earnings difference is now between menand women in the same occupation, and that it largely arises with the birth of the first child. Jakob Svensson, Chair of the Committee for the Prize in Economic sciences correctly said: "Understanding women's role in the labour marketis important for society. Thanks to Claudia Goldin's ground breaking research we now know much more about the underlying factors and which barriers may need to be addressed in the future," ❒

Pranab Kumar Chattopadhyay

Former A. K. Dasgupta Chair Professor in Planning and Development
Visva-Bharati, Santiniketan
e-mail: pranabk.chattopadhyay@visva-bharati.ac.in

LITERATURE

'Voices of the Unsayable': The Literature of Jon Fosse

Born in 1959 in Haugesund on the Western coast of Norway, Jon Fosse grew up in Strandebarm and had a near death experience in childhood. Fosse has recurrently written about this visionary experience post an accident that 'created' him as an artist:

> and everything was peaceful, and I looked at the houses back home, and I felt quite sure that I saw them for the last time as I was going to the doctor. Everything was shimmering and very peaceful, a very happy state, like a cloud of particles of light. This experience is the most important experience from my childhood. And it has been very formative for me as a person, both in good and in bad ways. I think it created me as a kind of artist.

Fosse has experimented with a wide range of genres including poetry, novels, theatre and children's books.

His first novel *Raudt, svart* (Red, Black) was published in 1983 and written in the Nynorsk or New Norwegian language, a minority language in Norway itself. Fosse roots his texts in the landscape of the Western fjords where he grew up. Fosse's other major novels include the *Septology* series of novels, *Aliss at the Fire*, *Melancholy* and *A Shining*.

The *Septology* series of novels outline Fosse's narrative style with minimalist plots and a deep exploration of the intricacies of characters. Two old painters both named Asle interact with each other in the city of Bjorgvin on the south-west coast of Norway. Both of them are solitary and the novel is marked by the haunting of memory where characters exist in doubles or pairs. Fosse's characters are often drawn from the fringes of society — alcoholics, poor and outcasts. Fosse pairs the commonplace and the existential with journeys into the past. The language moves from the minimalist to the incantatory, while the bleak landscape intrudes into the novel as a character in itself. The third volume of the series was shortlisted for the International Booker award 2022.

In *Morning and Evening*, the final part of the *Septology* series, Olai, a fisherman spends the last days of his life, moving from chore to chore as the unhurried prose traces the peace with which he embraces his end:

> and he stands up and looks around and looks around and then he thinks that everything is somehow what it is and at the same time different, all the things are normal things but they have become somehow dignified, and golden, and heavy, as though they weighed much more than themselves and at the same time had no weight. (36)

This calming novel seems to probe two fundamental questions — how do we move on and what do we move on to? Fosse's texts are also about the fragility of innocence, probing the thin line between enjoyment or love, a wish to reach out or to neglect. Fosse is marked by a deep sense of empathy through which his language brings out the deepest complexities in the most simple of things.

In *The Name*, the absence of the nameless lover of a pregnant girl evokes anxiety and tension described in tense, fragmentary sentences while his later *Trilogy* (2016) describes a cruel saga of love and violence and is set in the bleak Norwegian fjords. The *Trilogy* outlines a love story between Asle and Alida, a homeless couple who wander around the town of Bergen in the rain. Fosse creates a tapestry of allusions thereby teasing out the themes of injustice, crime and redemption.

In *Aliss at the Fire*, Fosse explores his favourite theme of memory as Signe lies in her old house by the fjord and reminiscences about her old life twenty years ago, when her husband disappeared in the fjords with his rowboat. The novel widens out into an arc of memory of several generations where man has encountered bleak nature and faced death. Fosse's evocation of time in this novel highlights how the eternal encroaches into the everyday.

Fosse acknowledged in his Nobel Acceptance Speech that he started writing plays quite accidentally:

> I wrote novels and poetry and had no desire to write for theatre, but in time I did it because – as part of a publicly funded initiative to write more new Norwegian drama – I was offered what was to me, a poor author, a good sum of money to write the opening scene of a play, and ended up writing a whole play, my first and still most performed play, *Someone Is Going to Come*.

However, his intitial experiment was met with acclaim and his theatrical output has been substantial. Fosse's major plays have included *And Never Shall We Part*, *Someone is Going to Come*, *The Name*, *Winter* and *A Summer's Day*. The influence of Beckett and Harold Pinter in his plays is significant. Fosse is the most performed Norwegian playwright after Henrik Ibsen.His plays echo the themes and minimalist style of his novels, often questioning the basis of theatrical realism. *I am the Wind*, an play about two men in a fishing boat captures the existential anxiety of men whereas *Someone is Going to Come* describes the waiting of an old couple by the sea, haunted by jealousy, paranoia and the thought that 'someone is going to come'. Fosse's plays shun the overtly dramatic theatre to explore moments of crisis in a looping unfathomable present with simple, yet elliptical dialogues. His innovation lies in his blending of everyday anxieties and powerlessness with a bare language, foregrounding the dramatic intensity. In *Suzannah* Fosse probes the loneliness of Suzannah Ibsen as she waits for her playwright husband to come home, while in *Sleep* Fosse falls back upon experiments with time as a young couple move from youth to old age. Fosse has also worked with myths in plays like *Telemakos* which explore the relationships between human beings and their offspring.

Fosse's poetry is similarly marked by a sparse modern language. His collection *Dibt i samling* (2021) brings out the shades of anxiety, loveliness and despair. Fosse has also translated poetic classics including Georg Trakl's *Sebastian-i-draum* (2019) and Rilke's *Duino-elegiar* (2022) into Norwegian.

Fosse has sometimes been criticized for a tinge of pessimism and nihilism. In his Nobel Acceptance Speech he defended himself by arguing:

> There are many suicides in my writing. More than I like to think about. I have been afraid that I, in this way, may have contributed to legitimising suicide. So what touched me more than anything were those who candidly wrote that my writing had quite simply saved their lives.
>
> In a sense I have always known that writing can save lives, perhaps it has even saved my own life. And if my writing also can help to save the lives of others, nothing would make me happier.

In his Nobel Acceptance Speech, Fosse talks about writing "from this secret place inside me … a place I honestly don't know much more about other than it exists…I try to give words to the silent speech …what speaks most through the pauses is silence. You hear the silence".

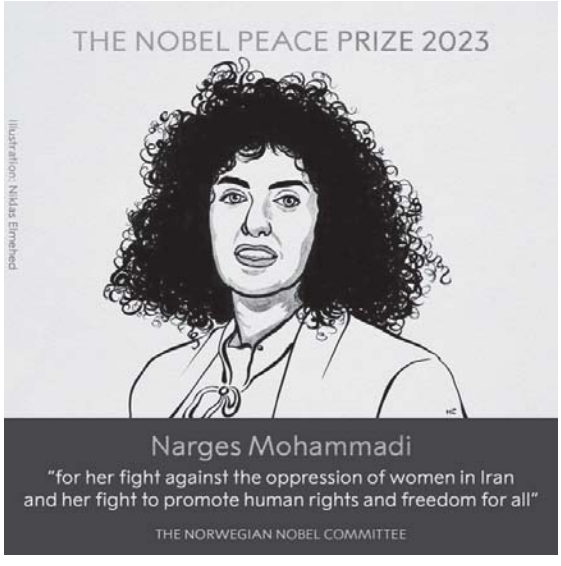
Jon Fosse was awarded the Nobel Prize for literature in 2023 "for his innovative plays and prose which give voice to the unsayable." ❐

Amrit Sen
Professor of English
Visva-Bharati
Santiniketan 731235
e-mail: amritsen@gmail.com

PEACE

Woman, Life, Freedom

For the last few years, Nobel Peace Prize has been conferred to recognise the rights movements. In 2021 the Nobel Peace Prize was awarded to Maria Ressa and Dmitry Andreyevich Muratov for their efforts to safeguard freedom of expression that is a pre-requisite for democracy and obviously for prevailing peace. In 2022 the prize was conferred to two organisations and one person who are working for the protection of human rights. The 2022 Nobel Peace Prize was awarded to human rights advocate Ales Bialiatski from Belarus, the Russian human rights organisation *Memorial* and the Ukrainian human rights organisation *Centre for Civil Liberties*. It was argued by the *Swedish Nobel Academy* that "The Peace Prize laureates represent civil society in their home countries. They have for many years promoted the right to criticise power and protect the fundamental rights of citizens. They have made an outstanding effort to document war crimes, human right abuses and the abuse of power. Together they demonstrate the significance of civil society for peace and democracy."



In the current year (2023), the Prize has been given to Narges Mohammadi of Iran for her fight against the oppression of women in her country. She is fighting to promote human rights and freedom for all. One may remember that the struggle for the safety of women was recognised in the previous decade by conferring the Nobel Peace Prize to Ellen Johnson Sirleaf, Leymah Gbowee and Tawakkol Karman. It was in 2011, they were awarded for their non-violent struggle for the safety of women and for women's rights to full participation in peace building work. Thus one may notice that the Swedish Nobel Academy is paying attention to the protection of democratic rights while considering the recipients for Nobel Peace Prize. The recognition of human rights and civil liberties is very significant. While awarding the persons and the organisations who are fighting tooth and nail for protecting the civil liberties and human rights in their home countries the *Swedish Nobel Academy* emphasized the importance of rights and liberties for prevailing peace in any geographical space, be it in any individual country or in the world on a whole. In this year it recognised the relentless struggle of Narges Mohammadi for the protection of human rights in general and women's rights in particular in her home-country Iran.

In Iran we find the presence of patriarchy and ill-treatment of women is a common affair there. The Iranian society in general is not the place where women and men can get equal rights. On the contrary, gender discrimination is so common that the progressives had no other options than to protest against it. They had to work for equity and equality irrespective of gender. In a recent article titled "Women's Status in the Process of Socio-Political Development in Iran", Maliheh Mousanejad has pointed

out that "According to statics, even though Iranian women in terms of literacy and education have been able to reach the global indicators of human development, due to various structural and cultural barriers, they have not yet been able to achieve a good situation in the political and social arenas. So, they are absent in many important and influential areas of society, and their place in the political and managerial decision-making arena is limited to low-impact areas."

In this perspective we should judge the works of Narges Mohammadi, who in her Nobel speech in absentia expressed the hope that "The Iranian people, with perseverance, will overcome repression and authoritarianism." She could not receive the prize in person because the fifty one years aged women rights activist is serving multiple sentences on charges including spreading propaganda against the Islamic Republic after her last arrest in November 2021. In the prize giving ceremony, her speech was read by her teen aged twin children. Symbolically she was present in the ceremony, held at Oslo on December 10, 2023 through her portrait and empty chair. She emphatically pointed out in her written speech that mandatory headscarf is a symbol of oppression. It should be noted that Narges Mohammadi was awarded the prize just over a year following 22-year-old Mahsa Amini's death in the custody of Iranian morality police after allegedly violating rules related to the hijab, an Islamic headscarf. In her speech written in the custody Narges Mohammadi said "We believe that the mandatory hijab imposed by the government is neither a religious obligation or a cultural tradition, but rather a means of maintaining control and submission throughout society," She said it is the time when the international civil society is supporting the Iranian civil society for its struggle against state oppression. She categorically mentioned that the protest movement, which adopted the slogan – "Woman, Life Freedom" - has significantly contributed to the expansion of civil resistance in Iran, and went on despite severe government repression. Mohammadi did not give up. She said that her life and the lives of many other activists are in constant struggle just to stay alive. Their sole crime, as alleged by the repressive ruler is that they are fighting for rights of the people. Despite of her captivity she said that the struggle would continue.

This non-violent resistance movement is the best strategy to end the repression against women. Primarily Mohammadi's struggle is for the freedom of women from oppression but basically it is the fight for human rights of all citizens of her country. The Nobel peace prize of this year is a recognition of her prolonged fight against oppression of the rulers. It also symbolised the rights movements, those are going on globally against the state sponsored repression. Thus the prize has not been given to an individual; it is the prize awarded to the human rights movement. Mohammadi is the personality who symbolised the struggle for prevailing the rights. It has been stated in the Nobel Prize citation that Mohammadi received the prize for her fight against the oppression of women in Iran and for promoting human rights and freedom for all. While announcing the decision Berit Reiss-Andersen, the chairperson of the Norwegian Nobel Committee, quoted the slogan of Iranian human rights campaigners, in Farsi and English: "Zan, Zedegi, Azadi. Woman, Life, Freedom". This prize will help to spread this slogan all over the world. ❐

Sabyasachi Chatterjee
Department of History
University of Kalyani
and
Member of the Editorial Board, Science and Culture
e-mail: sabya4@gmail.com