Keynote speech at 2024 Dirac Medal Ceremony

2 April 2025 at 14:00
ICTP Budinich Lecture Hall

Dear Professor Atish Dabholkar Director of ICTP,
Dear 2024 Dirac Medal Laureates,
Distinguished experts of theoretical physics,
Ladies and Gentlemen,

It is a great honor for me to have the opportunity to visit the International Centre for Theoretical Physics, which brings together the wisdom of theoretical physics from around the world, and to be invited to the award ceremony for the prestigious Dirac Medal and Prize.

On a personal note, I am very pleased to come back to Trieste. About ten years ago, when I was based in Vienna and in charge of International Atomic Energy Agency, I had the privilege of driving from Vienna, all the way through this historically very interesting part of Europe, stopping by places like Kobarid, or better known as Caporetto in Italian, and visiting this beautiful city. Thank you for giving me the opportunity.

First, I would like to extend my heartfelt congratulations to the four distinguished physicists, Professor Horacio Casini, Professor Marina Huerta, Professor Shinsei Ryu and Professor Tadashi Takayanagi, who have been awarded the 2024 Dirac Medal and Prize for their outstanding achievements.

I understand that this medal honors the four professors for their remarkable insights in theoretical physics over the years of exploring natural phenomena, the fundamental forces of nature, and the origin

and formation process of the universe. I greatly look forward to the lectures from each of the professors.

This year marks the 80th anniversaries of the end of the Second World War, the atomic bombings in Hiroshima and Nagasaki, and the adoption of the UNESCO Constitution. In this commemorative year, we would be reminded of how intertwined science and diplomacy are in deciding war and peace in the world.

Since 1945, UNESCO is dedicated to fostering peace and security by promoting international collaboration through education, science and culture with a view to constructing the “defence of peace” in the minds of men and women. Actually, this UNESCO mission was preceded by earlier international endeavors. In the aftermath of the First World War, about 100 years ago, the League of Nations established the International Committee of Intellectual Cooperation, which included eminent scientists such as Albert Einstein and Marie Currie, to seek their wisdom to enhance mutual understanding among nations.

Given the challenges currently facing the international community in our time, we have still a long way to go in constructing the defence of peace in the minds of men and women, or to achieve atoms for peace. And the nations are not in a position to bid “a farewell to arms”. Thus, diplomacy continues to need the wisdom of science.

Science allows us to enjoy and benefit from cutting-edge technology, and much of these benefits have been made possible by the achievements in theoretical physics. With regards to sustainable development, physics continues to play a crucial role in providing solutions to energy and environmental challenges. The achievements of the four laureates will also contribute to lasting peace and security that the UNESCO Constitution aims for.

In relation to quantum physics, the area of expertise of the four laureates, last year in June, the United Nations General Assembly proclaimed 2025 as the International Year of Quantum Science and Technology. At its opening ceremony held at UNESCO Headquarters in February, a wide range of themes surrounding quantum science and technology were highlighted, such as fostering innovation and international collaboration, leveraging quantum advancements for climate action, economic growth, societal well-being, and exploring how quantum technologies can contribute to a more inclusive and equitable world.

It is important to reduce the knowledge gaps, leave no one behind, and share the benefits of science and technology equitably around the world. Today in the morning, here at ICTP, I had the invaluable opportunity to come into contact with cutting-edge and cross-disciplinary research in frontier areas of science, such as High Energy, Cosmology and Astroparticle Physics, Earth System Physics and Quantitative Life Sciences. It was also a precious opportunity to learn about the efforts of ICTP in capacity building and science advocacy, particularly for scientists in developing countries, aimed at fostering and promoting scientific excellence, as a hub of international scientific cooperation. Taking this opportunity, I would like to pay tribute to ICTP's achievements and activities over the past 60 years of bringing together top talent from around the world with the goal of Science without Borders.

I would like to close my remarks by extending once again my warmest congratulations to the four laureates and wish them continued success and prosperity and expressing hope for the further development of both ICTP and theoretical physics.

Thank you very much for your attention.