TEACHING & LEARNING

Why Trust in Science Depends on Understanding Its Power to Self-Correct

As part of the Taiwan Bridges Program, Donna Strickland, winner of the 2018 Nobel Prize in Physics, delivered a keynote lecture at National Taiwan University on January 12, titled "*Why Trust in Science Is Important.*"

Prof. Strickland is internationally renowned for her pioneering work in ultrafast lasers and nonlinear optics. In 2018, she shared the Nobel Prize with Arthur Ashkin and Gérard Mourou, becoming one of only three women to receive the Nobel Prize in Physics in its more than 100-year history. Together with Mourou, she co-developed Chirped Pulse Amplification (CPA)—a breakthrough that overcame fundamental limits in high-power, ultrashort laser pulses by dramatically increasing peak laser power. Today, CPA underpins strong-field physics and has been widely applied in LASIK eye surgery, precision materials processing, and semiconductor manufacturing, profoundly reshaping modern technology and medicine.

Prof. Donna Strickland, 2018 Nobel Laureate in Physics and a Professor of Physics and Astronomy at the University of Waterloo in Ontario, Canada, delivering her keynote lecture at NTU.

In her lecture, Prof. Strickland addressed the uneven degrees of public trust in science observed across contemporary societies, emphasizing that science remains one of the most powerful engines of human progress. She pointed to technologies now taken for granted—such as the internet, GPS, and MRI medical imaging—all of which originated decades ago from curiosity-driven basic research, pursued without immediate applications in mind.

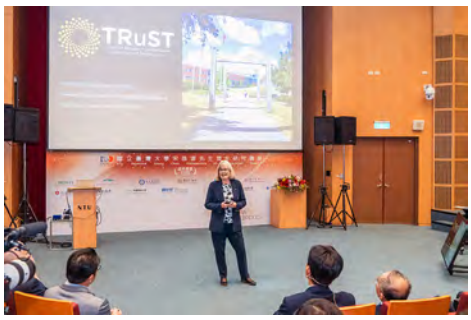
Drawing on her own scientific experience, Strickland argued that crises of trust often stem from misunderstandings about the nature of science itself. Science, she stressed, is not a collection of immutable truths, but a dynamic process of continuous revision and refinement. When scientists update conclusions in light of new evidence, this is not a failure—it is the scientific method working as intended.

She cited the COVID-19 pandemic as a vivid example, describing it as "a scientific experiment unfolding in real time in the public arena." As data accumulated, scientific guidance necessarily evolved. Yet these revisions were frequently misinterpreted as inconsistency or unreliability. In reality, she noted, such changes reflect intellectual honesty and responsiveness to new evidence, not weakness. She called on the scientific community to communicate more transparently—clearly distinguishing between what is known, what remains uncertain, and what is still being investigated—to reduce public anxiety and misinformation.

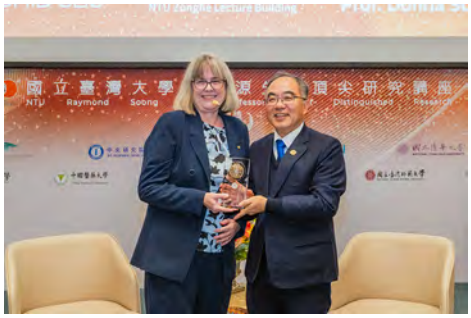
Addressing students directly, Prof. Strickland offered a simple but powerful message:"
Stay curious, be patient, and be honest."

In an era dominated by information overload and short-term metrics, she acknowledged that these qualities may seem unfashionable—but insisted that curiosity, patience, and honesty remain the most enduring strengths of a scientist.

The lecture hall was filled to capacity and, after the lecture, time was allotted for the students and faculty to engage the Nobel laureate in dialogue. Through the lecture and follow-up dialogue, the participants came away with a deeper understanding that trust in science does not mean blind faith in authority, but rather confidence in a process grounded in evidence, transparency, and self-correction. Ultimately, Strickland emphasized, it is the scientist's willingness to acknowledge uncertainty and error that forms the true foundation for rebuilding public trust and addressing global challenges.



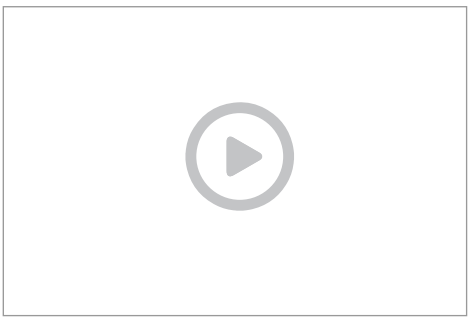
Prof. Strickland encouraged students not to be constrained by publication counts, but to commit long-term to investigating questions they truly care about. Many major scientific breakthroughs, she noted, emerge from patience and sustained effort rather than chasing transient trends.



NTU President Wen-Chang Chen (right) presenting the Raymond Soong Chair Professorship trophy to Prof. Strickland (left).

Prof. Shi-Wei Chu of NTU's Department and Vice President for Student Affairs (right) remarking that Prof. Strickland's lecture vividly demonstrated how fundamental science shapes human civilization.

Group photo of Prof. Strickland with NTU faculty and students.



Highlights of Prof. Donna Strickland's public lecture "*Why Trust in Science Is Important.*"

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