

FORESIGHT INSTITUTE ANNOUNCES 2022 FEYNMAN PRIZE WINNERS

Awarded since 1993 !

**THE PRESTIGIOUS NANOTECHNOLOGY
AWARD WINNERS ARE**



KALININ

Experiment



CHELIKOWSKY

Theory



PENOCCHIO

Student

Introduction

Foresight Institute is a **leading think tank, research, and public interest organization** focused on **molecular manufacturing** and other **transformative technologies** which aim to progress the long-term future of life. Today, Foresight Institute, announces the **2022 winners** for the prestigious **Feynman Prizes**, awarded **since 1993**. The prizes in Theory and Experiment are named in honor of **pioneer physicist Richard Feynman** for the construction of **atomically-precise products** through the use of **productive nanosystems**. Foresight Institute also announces its Distinguished Student Award, recognizing an individual whose work is considered notable in advancing the development and understanding of **nanotechnology**.

2022 PRIZE WINNERS

Feynman **Prize in Experiment:** **Sergei V. Kalinin** of the University of Tennessee nanotechnology.

Sergei V. Kalinin of the University of Tennessee receives the 2022 Foresight Institute Feynman Prize for Experimental work



Sergei Kalinin is a professor at the University of Tennessee, Knoxville (currently on sabbatical at Amazon), following 20 years at Oak Ridge National Laboratory. He received his MS degree from Moscow State University in 1998 and Ph.D. from the University of Pennsylvania (with Dawn Bonnell) in 2002. His research focuses on the applications of machine learning and artificial intelligence in nanotechnology, atomic fabrication, and materials discovery via scanning transmission electron microscopy, as well as mesoscopic studies of electrochemical, ferroelectric, and transport phenomena via scanning probe microscopy.

2022 PRIZE WINNERS

Feynman **Prize in Theory:** **James R. Chelikowsky** from the University of Texas

James R. Chelikowsky from the University of Texas receives the 2022 Foresight Institute Feynman Prize for Theory

Professor James Chelikowsky has pioneered the use of computational approaches to understand and predict the properties of materials at the nanoscale. He was the first to exploit highly parallel computational platforms to solve for the electronic structure of dimensionally confined systems. His work has led to an understanding of the role of quantum confinement for a variety of properties such as diffusion of impurities in nanowires, the emergence of magnetism in iron clusters, and the self-purification of defects in nanocrystals. Recently he developed algorithms for solving the electronic structure problem for large and complex systems, including those containing over 100,000 atoms. His work in quantum theory, coupled to recent experimental advances in atomic force microscopy, has notably advanced Feynman's goal of visualizing and manipulating atoms in molecules and nanostructures.



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2022 PRIZE WINNERS

Distinguished **Student Award:** **Dr. Emanuele Penocchio**



Dr. Emanuele Penocchio is announced as the 2021 winner for the Distinguished Student Prize

Emanuele Penocchio pioneered a new generation of physical chemists able to connect supramolecular chemistry to the out-of-equilibrium thermodynamic concepts being developed by theoretical physicists. He extended information thermodynamics of chemical reaction networks to molecular machines driven by catalysis or light, leading to design principles for molecular manufacturing. In addition, Emanuele used theoretical advancements to quantitatively analyze experimental systems in collaboration with two leading groups in molecular nanotechnology, namely the Leigh group and the Credi group, establishing the efficiency of synthetic molecular motors.

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**Thank you for
advancing the
beneficial
development of
crucial technologies
with us.**

