

Professor Michael LEVITT

Citation

A Nobel laureate in chemistry, Professor Michael LEVITT is revered as a pioneering biophysicist, who has fearlessly ventured into the realm of computational structural biology. For over half a century, he persists in his research that combines quantum and classical mechanics to calculate the courses of chemical reactions using computers, driving significant advancements in scientific and medical innovations.

Born in Pretoria, South Africa, Prof. Levitt's scientific prowess was nurtured in a Jewish family with a rich legacy of scientists, including his aunt and uncle. An incredible twist of fate at the age of 15, when he first developed his passion for science, he was asked by his mother to finish the last two years of school over a summer vacation due to a late-night snooker game with friends.

With the help of private tutoring, he succeeded in passing his matriculation examinations and earned the ticket to Pretoria University to study applied mathematics before turning 16. A year into his university studies, he headed to London to spend the break with his aunt and uncle, during which he was mesmerized by molecular biology through the BBC lecture series *The Thread of Life*. Enthralled by the understanding that life was highly structured in space and time like a clock, he was then drawn to physics for its potential underpinnings for life sciences, despite the notion seeming far-fetched at that time.

The newfound interest in physics led Prof. Levitt to King's College London, renowned for the study of biophysics. He also completed a course offered by a computer company and wrote his first program using paper tape. Soon after, he got a summer job at the Radiation Laboratory in Berkeley, California, where he wrote another program using more advanced punched cards.

Planning computer programs back then was much more challenging than modern times, as Prof. Levitt would have to spend hours on end furiously typing in on punched cards. Yet, his unwavering determination saw him enhance his computer programs and theses, culminating in his groundbreaking research of computational structural biology. Such perseverance was also indispensable to his pursuit of a PhD between 1968 and 1972 at the fabled MRC Laboratory of Molecular Biology (LMB) in Cambridge, a cradle of Nobel laureates.

Initially rejected by LMB, he drove all the way to Cambridge and directly appealed to one of the then-directors Max PERUTZ. It turned out to be a worthy venture that marked the start of his Nobel Prize winning research under guidance of acclaimed academics, including Nobel laureate Dr. Francis CRICK.

At LMB, Prof. Levitt's pioneering work in applying computational methods to biology,

which was first met with skepticism, soon proved revolutionary. His work has since enabled the development of molecular dynamics simulations, a groundbreaking computational approach to model and predict the behavior of biological molecules in unprecedented detail, leading to numerous discoveries in drug design, enzymology, and structural biology. Prof. Levitt's tremendous contributions to the wellbeing of humans earned him the Nobel Prize in Chemistry in 2013, alongside his collaborators, Prof. Martin KARPLUS and Prof. Arieh WARSHEL. During the COVID-19 pandemic, he and his research team dedicated themselves to analyzing virus data, shedding light on the development and impact of the global health crisis.

Prof. Levitt's illustrious academic career transcends geographical boundaries, with his footprint spanning from South Africa, Israel and the United Kingdom, to the United States and China. He is currently Robert W. and Vivian K. Cahill Professor in Cancer Research at Stanford University, a Member of the US National Academy of Sciences and the European Molecular Biology Organization, and a Fellow of the Royal Society and the American Academy of Arts and Sciences.

He has for long forged a close relationship with the Hong Kong University of Science and Technology (HKUST). A Senior Visiting Fellow of HKUST Jockey Club Institute for Advanced Study,

he delivered a lecture on "Birth and Future of Multiscale Modeling of Macromolecules" in 2015, inspiring hundreds of HKUST researchers and students. He also acknowledges the University's efforts in advancing the field of artificial intelligence (AI) and encourages everyone to embrace AI technologies.

Pro-Chancellor, on behalf of the Council of the Hong Kong University of Science and Technology, I have the high honor of presenting to you, Prof. Michael Levitt, the awardee of the Nobel Prize in Chemistry 2013, for the award of Doctor of Science *honoris causa*.