



THE CHINESE UNIVERSITY OF HONG KONG
Department of Physics
COLLOQUIUM

From Particles to Patients: The Interplay of Physics, Artificial Intelligence and Modern Medicine

by



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Date: January 19, 2024 (Friday)

Time: 4:00 - 5:00 p.m.

Place: L2, Science Centre, CUHK

(Light refreshments will be served at [SCNB 1/F lobby](#) from 3:30 to 3:50 p.m.)

ALL INTERESTED ARE WELCOME

Abstract

In this talk, I will unveil the unapparent but exciting intersection of physics, artificial intelligence (AI), and modern medicine. This talk aims to inspire and shed light on the potential pathways for physics majors. You will gain a fresh appreciation for the how interweaved natural and clinical sciences are, and see how your skillset acquired in physics could contribute to the evolution of healthcare. Join me as we journey through the dynamic landscape of physics applied to medicine and explore how you can pursue a career in the healthcare academia or industry.

On the research front, I will introduce to you some state-of-the-art cases of integrating physics in medicine. For instance, how fluid dynamics was applied understand the mechanisms behind strokes; optics to investigate means to customize microscope for the modelling of cells behaviours; radiations in micro-CT imaging to understand cell organelles structures; EM to design MRI sequences for the purposes of investigating chemical exchange; statistics and informatics to identify imaging markers for diagnosis. And of course, how machine learning and AI played an essential role in enabling some of these studies.

On the application and translation front, I will highlight the key differences between clinical research and pure science research. I will also briefly cover the human study ethics required in clinical studies and Hong Kong's policy on clinical research. Understanding these differences will bring benefit you if you aspire to enter the clinical field.

Finally, I will share how I followed an unlikely pathway venturing into clinical science based on the skill-set I acquired during my undergraduate, majoring in physics and minoring in computer science.

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