



香港中文大學
院士講座系列

The 16th Lecture Series by Academicians from the Chinese Academy of Sciences (CAS)

*Jointly Organized by
Department of Statistics and Data Science
Office of Academic Links (Mainland and Regional)*

Speaker: Prof. CHEN Songxi
Division of Mathematics and Physics
Chinese Academy of Sciences
中國科學院數學物理學部陳松蹊院士

Title: Ultra High Resolution Statistical Data Assimilation for
Atmospheric and Oceanic Reanalysis Datasets
超高分辨率統計數據同化及大氣、海洋科學數據集構造

Language: English

Date: Wednesday, 25 Mar 2026

Time: 16:30 – 17:30

Venue: LT2, Lee Shau Kee Building

Registration: https://www.cuhk.edu.hk/oalmr/cas_2026/



Biography

Prof. Chen Song Xi is Chair Professor and Founding Chair of Department of Statistics and Data Science at Tsinghua University. He has been a Member of the Chinese Academy of Sciences (CAS) since 2021, currently the only CAS member in the field of Statistics in China. He is the chairman of the Chinese Society for Probability and Statistics, Vice President of the National Statistical Society of China, Fellow of the American Statistical Association (ASA), Fellow of the Institute of Mathematical Statistics (IMS), Elected Member of the International Statistical Institute (ISI), and Fellow of the American Association for the Advancement of Science (AAAS). In 2024, Prof. Chen was appointed by the Ministry of Education as the lead expert for the “101 Project” in Statistics.

Abstract

Reanalysis data (RA) which are the results of combining physical model and observations are the foundations of data-driven scientific research, and are used to train AI models in recent years with impressive performances. RA generate high quality initial values for prediction of dynamic systems, and allows the AI models automatically pick up some underlying physics.

Although improved observation techniques and physical models have made high resolution data products possible, the ultra-high dimensionality of the state variables imposes much statistical challenges which has to overcome in order to attain high quality reanalysis data products. Motivated by tasks for producing high resolution global terrestrial ecosystems carbon influx estimates and a large scientific RA data set for the Western Pacific, I will show how high dimensional statistical research can empower data assimilation in very high dimensions, providing theoretical assurance, and achieving better accuracy and prediction performance than the data products produced by Carbon-Tracker and GLORYS, the two state-of-the-Art products.

ALL ARE WELCOME