

國立清華大學第 18 屆新進人員研究獎得獎人簡介



化工系 姚 遠 副教授

姚遠副教授於 2009 年畢業於香港科技大學化學工程與生物分子工程學系，取得博士學位，同年至香港科技大學高分子成型過程及系統中心任副研究員(Research Associate)，並於 2011 年進入本校化學工程學系任教，從事程序控制相關研究。

姚教授主要研究領域為製程化學計量學(Process Chemometrics)，即將統計方法及人工智慧技術應用於化工生產製程的分析與改善，並結合程序控制，從而確保製程安全，提升生產效率及產品良率。研究課題包括多變數統計製程監控及資料分析、故障檢測及診斷、軟測量、控制性能評估等。此外，姚教授亦積極拓展研究方向，投入高分子加工製程樹脂轉注成型之研究，包含關鍵製程參數及材料特性之線上量測、樹脂流動控制、產品缺陷之無損檢測等領域。其研究成果均發表於所屬研究領域之國際頂尖期刊，例如 *AIChE Journal*, *Industrial & Engineering Chemistry Research*, *Journal of Process Control*, *Chemometrics and Intelligent Laboratory Systems* 等。姚遠副教授自進入本校服務以來，共主持和共同主持研究計畫 17 件，包括科技部產學大聯盟計畫、科技部國家能源型計畫、科技部(國科會)一般型研究計畫、經濟部科專計畫、教育部邁頂計畫等，並發表 SCI 期刊論文 23 篇，其中有 15 篇為通訊作者。此外，還有 5 項專利已經提出了中華民國專利、美國專利和大陸專利的申請。關於樹脂轉注成型的研究成果還獲得了國內著名模流分析企業的產學合作計畫以及技術移轉。

有幸獲得清華大學新進人員研究獎的肯定，姚教授要感謝本校、工學院和化工系所提供的優質研究環境與資源，系上同仁一直以來的提攜照顧，以及研究團隊學生們的努力。另外，感謝家人的支持和關懷，給予其最大的力量。

Assoc. Prof. Yuan Yao received his Ph.D. from Department of Chemical and Biomolecular Engineering, the Hong Kong University of Science and Technology in 2009. Before joining National Tsing Hua University in 2011, he served as a research associate in Center for Polymer Processing and Systems at the Hong Kong University of Science and Technology.

Dr. Yao's research focuses on process control related fields, especially process chemometrics, which is highly interdisciplinary. By applying statistical methods as well as artificial intelligence techniques to chemical process studies, process safety, operation efficiency and product quality can be improved. The related research topics include multivariate statistical process control and data analysis, fault detection and diagnosis, soft sensors, control performance assessment, etc. In addition, Dr. Yao extended his research interests to resin transfer molding. The studied problems include online measurement of key process parameters and material properties, flow control, non-destructive testing for defect detection, and so on. The results have been published in top journals in process control or statistics, e.g. AIChE Journal, Industrial & Engineering Chemistry Research, Journal of Process Control, Chemometrics and Intelligent Laboratory Systems, etc. After joining NTHU, Dr. Yao hosted 17 research projects as principle investigator or co-principal investigator (including Major Alliances between Academia and Industry (MOST), National Energy Programs (MOST), Projects for Junior Researcher (MOST/NSC), Technology Development Programs (MOEA), Aim for the Top University Plan (MOE), etc), and published 23 papers in SCI journals. He is the corresponding author of 15 of these papers. In addition, Dr. Yao has submitted 5 patent applications in ROC, US and mainland China. The developed technology of online measurement of local permeability during resin transfer molding has been transferred to a leading Computer-Aided Engineering (CAE) company.

Dr. Yao would like to thank the university, College of Engineering, and Department of Chemical Engineering for providing such excellent research facilities as well as a stimulating atmosphere, and the department colleagues for their help and guide. He also wishes to thank his graduate students for their hard work. In addition, he wants to appreciate his family who always support him and are there for him.