

中央研究院原子與分子科學研究所  
Institute of Atomic and Molecular Sciences (IAMS), Academia Sinica

# 演 講 公 告

## Arrays of Individual Controlled Molecules for Quantum Science



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**Abstract:** Advances in quantum manipulation of molecules bring unique opportunities, including the use of molecules to search for new physics, harnessing molecular resources for quantum engineering, and exploring chemical reactions in the ultra-low temperature regime. In this talk, I will focus on the latter two topics. First, I will introduce our effort on building single ultracold molecules in an optical tweezer array. With an array of 5 or more molecules prepared with full internal and external quantum state control, we are now working to add the ingredient of dipolar interaction to allow applications in quantum simulations and information processing. Second, I will summarize, if time allows, our work giving a detailed microscopic picture of molecules transforming from one species to another. We develop full quantum state mapping of chemical reaction product-pairs from single events, which we use to precisely benchmark statistical theory.

**Time: 3:30PM, December 29 (Thursday), 2022**

**Place: Dr. Poe Lecture Hall, IAMS 本所浦大邦講堂**

**Host: Dr. Kuei-Hsien Chen 陳貴賢所長**

**協辦單位：財團法人張昭鼎紀念基金會**