

Abstract Submitted  
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**Molecular aggregates in cavities: from Bose-Einstein condensation to chemistry and back**<sup>1</sup> JOEL YUEN-ZHOU, University of California San Diego — In this talk, I will discuss recent theoretical work discussing how thermodynamics and kinetics of molecular processes can be nontrivially altered when organic dye aggregates strongly interact with confined electromagnetic fields. I will discuss some generalizations of transition state theory that are suitable to polariton ensembles. Finally, I will argue that room-temperature nonequilibrium polariton condensates can be harnessed to drive a photochemical reactions to near 100% selectivity even when the bare photochemical reaction has democratic branching ratios.

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