NANYANG TECHNOLOGICAL UNIVERSITY

CBC SEMINAR ANNOUNCEMENT

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Organic TADF Emitters for Light-Emitting Electrochemical Cells and Organic Light-Emitting Diodes

The first generation OLEDs were based on organic fluorescent emitters. Their efficiency was intrinsically capped at 25% due to only being able to recruit singlet excitons. The second generation OLEDs have employed organometallic phosphorescent emitters, which harvest both singlet and triplet excitons for emission due to the enhanced intersystem crossing mediated by the heavy metals such as iridium(III) and platinum(II). These metal complexes possess very desirable optoelectronic properties and lead to very efficient OLED devices. However, the rarity of these metals, their high cost and their toxicity are important detracting features that inhibit large-scale, worldwide adoption of OLED technology, particularly for lighting where, unlike displays, low cost devices are crucial to market growth. The third generation OLEDs are based on small organic compounds that emit via a thermally activated delayed fluorescence (TADF) mechanism. As with phosphorescent emitters, OLEDs using these emitters can recruit 100% of the excitons. In this presentation, I will present our efforts towards emitter design, particularly targeting blue emission, in OLED architectures, which is a grand challenge in solid-state lighting. I will also present the first examples of organic TADF emitters in light-emitting electrochemical cells.

Date:	**28th November 2017 (Tuesday)**
Time:	**2:00pm – 3:30pm**
Venue:	**SPMS Research & Graduate Studies Office Conference Room**
Host:	**Asst Professor Soo Han Sen**