賀 海大光電與材料系洪文誼 特聘教授與台大研究團隊共同發表頂尖期刊 Nature Communications 獲校長頒獎特別表揚

國立臺灣海洋大學 107 學年度第 1 學期第 6 次行政會議紀錄

時間:108年1月15日(星期二)上午9時00分

地點:行政大樓第二演講廳

出列席人員:詳簽到單

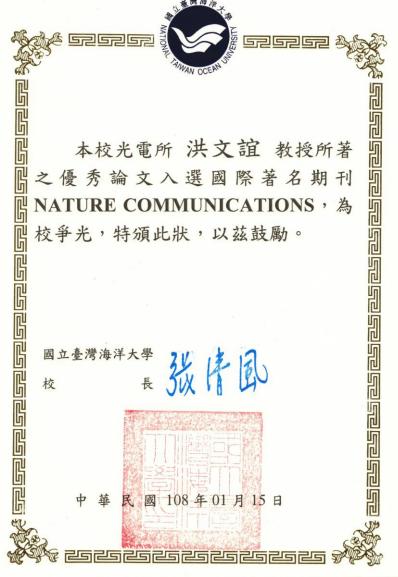
主席:張校長清風

壹、 頒獎

一、優秀論文入選國際著名期刊 NATURE COMMUNICATIONS 獲獎教師

單位	姓名	職稱	論文名稱	獎勵
光電科學研究所	洪文誼	教授	Probe exciplex structure of highly efficient thermally activated delayed fluorescence organic light emitting diodes	獎狀乙幀 獎金5萬元







ARTICLE

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Probe exciplex structure of highly efficient thermally activated delayed fluorescence organic light emitting diodes

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The lack of structural information impeded the access of efficient luminescence for the exciplex type thermally activated delayed fluorescence (TADF). We report here the pump-probe Step-Scan Fourier transform infrared spectra of exciplex composed of a carbazole-based electron donor (CN-Cz2) and 1,3,5-triazine-based electron acceptor (PO-T2T) codeposited as the solid film that gives intermolecular charge transfer (CT), TADF, and record-high exciplex type cyan organic light emitting diodes (external quantum efficiency: 16%). The transient infrared spectral assignment to the CT state is unambiguous due to its distinction from the local excited state of either the donor or the acceptor chromophore. Importantly, a broad absorption band centered at ~2060 cm⁻¹ was observed and assigned to a polaron-pair absorption. Time-resolved kinetics lead us to conclude that CT excited states relax to a ground-state intermediate with a time constant of -3 µs, followed by a structural relaxation to the original CN-Cz2:PO-T2T configuration within ~14 µs.

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