

SYNTHESIS AND PHOTOPHYSICAL CHARACTERISATION OF CONJUGATED FLUORENE AZOMETHINES AND AZOMETHINE PRECURSORS

Derek Tsang¹ and W.G. Skene²

¹Home Institution: University of Toronto. ²Host Institution: University of Montreal

Azomethines are interesting connecting units for conjugated materials because they are isoelectronic to their carbon analogues. In addition, they are obtained with synthetic ease without the use of stringent reaction conditions or the use of expensive catalysts. The mild synthetic formation leads itself to selective step-wise product formation without the use of complicated purification whereby symmetric and unsymmetric product control is readily possible.

Given the ease of azomethine synthesis, fluorenyl analogues were investigated as suitable alternatives for luminescent layers in organic-light emitting diodes (OLEDs). Fluorenyl azomethines, which provide blue emission and high quantum yields of fluorescence, were subject to study under laser flash photolysis (LFP) to characterize the photophysical properties of these compounds. No triplet states were observed, suggesting intrinsic self-quenching. This desired behavior, absent in carbon analogues, makes the azomethines viable alternatives for luminescent layers in OLED devices.

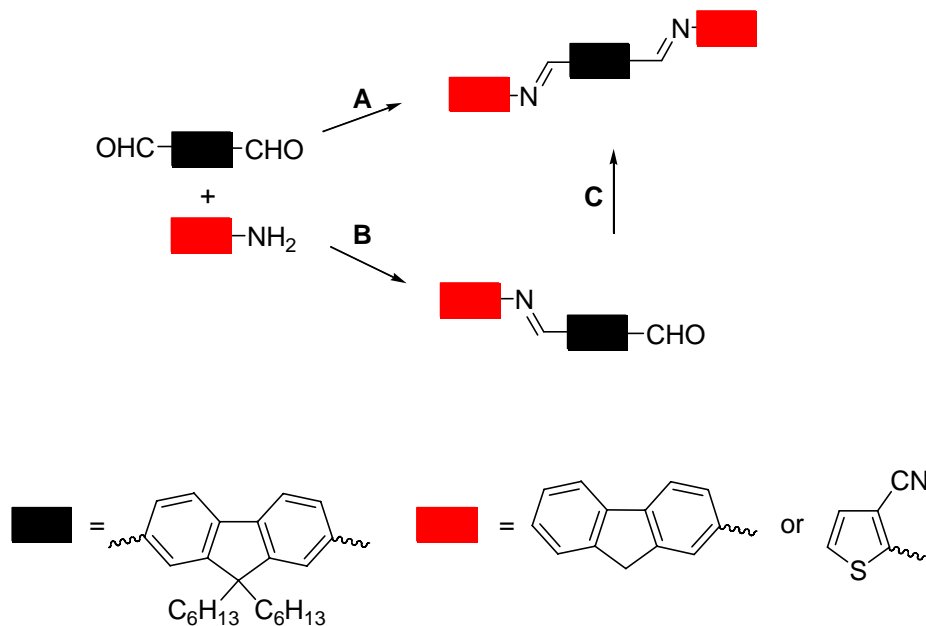


Figure 1. Selective azomethine formation with either stoichiometric (B = ethanol) or solvent control (A, B, and C= isopropanol).