THE SHORT ABSTRACTS OF SOME PRESENTED PAPERS

GLASS-FORMING CYANO-SUBSTITUTED CARBAZOLE DERIVATIVES FOR OPTOELECTRONICS

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Organic charge-transporting materials are used in electrophotographic photoreceptors, light-emitting diodes, photovoltaic devices and other optoelectronic devices [1,2]. Much attention has been recently paid to organic low-molar-mass compounds that form glasses above room temperature.

Due to efficient hole transport and excellent thermal stabilities, electron-rich carbazole moiety is widely used in the design and synthesis of hole-transporting and light-emitting materials [3]. On the other hand, cyano-substituted compounds show good optical and electrical properties due to their high electron affinities. Some cyano-substituted compounds were reported to show unique emission enhancement rather than quenching in the solid state [4]. The structures of carbazole derivatives containing cyano groups synthesized and studied in this work are shown in Fig 1. The key step in the synthesis was Ullmann coupling reaction of 3-iodo or 2-bromo-9-ethylcarbazole with 3- or 2,7-dicyanocarbazole.

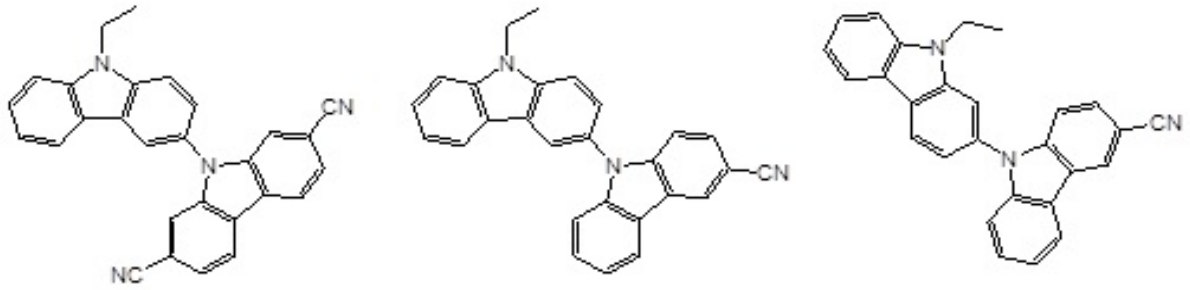

Fig. 1. Cyano substituted carbazole based derivatives

The chemical structures of the synthesized compounds were confirmed by ^{1}H and ^{13}C NMR, IR and mass spectroscopies. The thermal, optical, photophysical, electrochemical and photoelectrical

properties of the synthesized compounds have been studied and will be reported.

Acknowledgement

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ELECTROCHEMISTRY IN MICROSCALE. SCANNING ELECTROCHEMICAL MICROSCOPY: NEW POSSIBILITIES, NEW TECHNIQUES

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The VersaSCAN is Scanning Electrochemical Microscopy (SECM) single platform capable of providing spatial resolution to both electrochemical and materials-based measurements. Traditional electrochemical experiment measure an average response over the entire electrode/electrolyte interface. Rarely a sample is homogenous. Samples often consist of local sites of passivate/active nature or sites of anodic/cathodic character. This need to investigate localized phenomenon led to the emergence of scanning probe electrochemistry.
In collaboration with LEPA-EPFL, we offer the Soft Stylus Probe contact mode technique developed by Professor Hubert Girault and co-workers for constant distance SECM. The probe technology offers benefits like Constant distance SECM: SECM imaging without major topographic artefacts. It is ideal for tilted, corrugated and rough samples.