Panida Maneekobkulwong 2012: 4-Ethynyl-*N*,*N*-Dimethylaniline and 1-Ethynyl-4-Methylbenzene Derivatives with Bromoarene Nucleus for Oleds Devices : Sonogashira Coupling, Microwave-Assisted Synthesis, Spectral Properties and Theoretical Studies. Master of Science (Chemistry), Major Field: Chemistry, Department of Chemistry. Thesis Advisor: Mr. Songwut Suramitr, Ph.D. 76 pages.

4-Ethynyl-*N*,*N*-dimethylaniline and 1-ethynyl-4-methylbenzene derivatives of aryl-pi-donor molecules has been synthesized and studied with respect to their photophysical properties. Microwave-assisted, palladium-catalyzed Sonogashira-type couplings of terminal acetylenes with 4-bromobipheny, 2-bromofluorene and l-bromopyrene are the latest strategies in this endeavour. All molecules show absorption in the near-visible region and emission in the visible region. Bright solid-state photoluminescence has also been noticed for all the compounds in the visible region. The density functional theories (DFT) were investigated for support the experimental observations. A fast, simple and effective procedure for the synthesis of aryl-pi-donor dyes under microwave irradiation condition can been used for novel tunable organic materials.

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