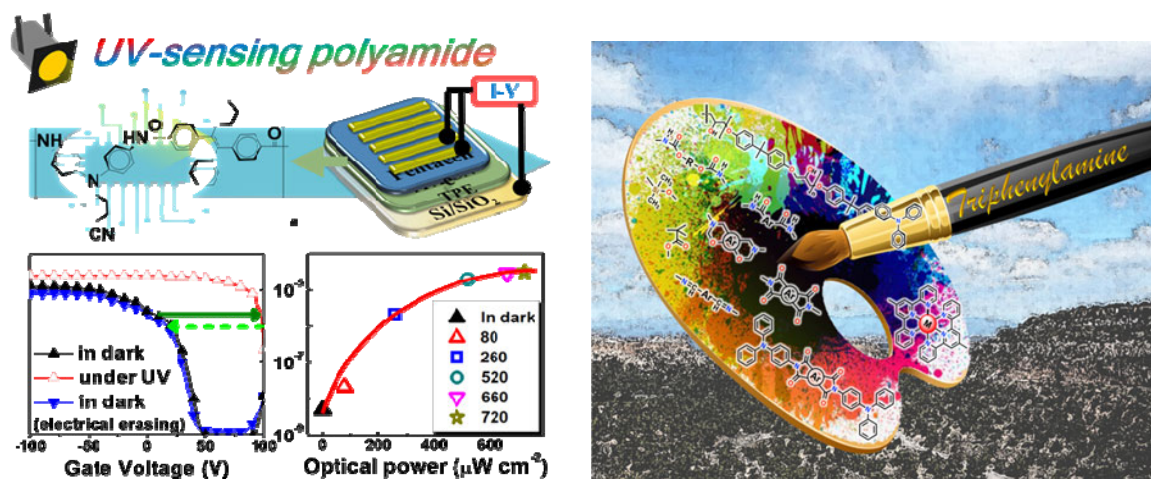


## New Trends in High-Performance Polymers for Advanced Applications

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This article describes the recent development of high-performance polymers-based advanced materials for various optoelectronic applications, such as electrochromic, electrofluorochromic, and polymeric memory devices. We herein systemically discuss the structural design, optical and electrical properties of different triphenylamine (TPA)-containing high-performance polymers that will be beneficial for polymer chemists and scientific community to have deeper and broader understanding of the recent developments and further prompt the engineering and conceptual design of materials for a number of emerging applications (data storage, displays, and flexible electronics). Thus, a majority of the recent works in our laboratory involving the synthesis and property evaluation of functional high-performance polymers (HPPs) as well as their structural design by using the respective novel arylamine/(TPA) containing monomers will be included in this talk. Solution-processable functional HPPs were successfully prepared as the application of AIE-based PL luminescent and electrochromic materials with interesting color transitions and good electrochromic reversibility in the visible region or NIR range and electrofluorochromic (so called electrochemically photo-switching) devices. The relation between structures and properties of the resulted functional high-performance polymers will be presented in terms of their functionality.



High-performance organic field transistor-type memory and electrochromic (EC) devices derived from functional polymers with triarylamine units as redox- and AIE-active layer.

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