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## **Surface Characterization of poly(p-phenylenevinylene) and its derivatives, MEH-PPV and DMOS-PPV, using XPS, Static SIMS and ToF-SIMS**

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The  $\pi$ -conjugated polymers have received much attention for their use in the field of light emitting diodes (LEDs). Poly (p-phenylenevinylene) and its derivatives, MEH-PPV and DMOS-PPV, have been used as a active luminescent layer. It is well known that polymer surfaces and metal-on polymer interfaces play an important role in the stability and reliability of the polymer LEDs.

In this work, surface analyses were performed using X-ray photoelectron spectroscopy (XPS), static secondary ion mass spectrometry (SSIMS) and time of flight secondary ion mass spectrometry (ToF-SIMS) to investigate the polymer surface of PPV and its derivatives. The polymers were spin-casted onto glasses with the thickness of about 1000 Å. From the SSIMS results, we observed some characteristic molecular ion fragments, such as hydrocarbon fragments of PPV, oxygen containing ions of MEH-PPV and Si containing ions of DMOS-PPV. We also observed the yield changes of the benzene ring components among the three polymers. These results could be explained with the side chains of the polymers and the structure of the polymer surfaces. For the better understanding of the top most surface of the polymers, we compared the SSIMS spectra with the ToF-SIMS spectra and the chemical state informations of the polymers were investigated by XPS.