APRESENTAÇÃO - PÔSTER (CLIQUE AQUI PARA SABER OS DETALHES PARA SUBMISSÃO) - SÍNTESE E CARACTERIZAÇÃO DE MATERIAIS

CARACTERIZAÇÃO ÓPTICA E ESTUDO DA TRANSFERÊNCIA DE ENERGIA INTERNA DO TERPOLÍMERO LAPPS76

Thaís Dos Santos Moraes (thsamoraes@gmail.com)

A. De. J. Santana (Pq); Ufpr (nossila.08@hotmail.com)

R. V. Fernandes (Pq); Uel (ricardovignoto@gmail.com)

Flavio Franchello (f.franchello@gmail.com)

Denis Augusto Turchetti (denisturc@gmail.com)

Leni Campos Akcelrud (akleniak@gmail.com)

Edson Laureto (laureto@uel.br)

Jose Leonil Duarte (jleonilduarte@gmail.com)

With the advancement of OLED technology, the research in organic materials as candidates for active layers of these devices has been intense. Through the synthesis of new polymers, it is possible to obtain characteristics that optimize the emission and durability of OLEDs. Based on this, the LaPPS76 (L76) synthetic terpolymer was studied in this work. In L76 the mer consists of the union of segments of the copolymers fluorene-benzothiadiazole (FB) and fluorene-terpyridine (FT), both synthesized by Suzuki’s polycondensation route. In order to study the emission and quantify the energy transfer processes (ET) between the chromophores, solutions of L76 diluted in tetrahydrofuran (THF) were prepared with two relative chromophore concentrations: 70% of FB and

30% of FT and the inverse (30% of FB and 70% of FT). Initially, terpolymer absorption measurements were performed, where it was possible to observe that the L76 absorption spectrum is a composition of the FT and FB spectra, there is no formation of additional band. The photoluminescence (PL) measurements were made by exciting one copolymer at a time. With excitation in the FT absorption region it was observed FB emission, which indicates ET from FT to FB, it was also observed that, for the L76(70:30) solutions, there is saturation of FB emission and, consequently, FT emission. Photoluminescence Excitation (PLE) measurements were made as a complementary study, and the results reinforced the ET hypothesis. With the results from emission decay time measurements, it was possible to confirm ET from FT to FB and verify that it is intern to the molecule, because the dilution of the materials in the solvent did not promote considerable variations in the terpolymer lifetime, which explained the saturation in the PL of L76(70:30) solutions. The TE efficiency was calculated with lifetime results and the results showed an efficiency of 83% for L76(30:70) and 44% for L76(70:30).