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가 응축된 하이브리드 P3MT/Au 나노선 한 가닥에 top contact 방식으로 4단자 전극을 제작하였다. 4단자 전극 사이의 간격은 약 1 μm이며, 전자빔 리소그래피 (e-beam lithography)를 이용하여 제작하였다. P3MT 나노선과 P3MT/Au 하이브리드 나노선의 직부 전극 전도도를 각각 측정하였으며 직부 전극 전도도의 중간 외부성 실험을 통하여 전자전도도 특성을 분석하였다. 또한 P3MT 나노선과 P3MT/Au 하이브리드 나노선에 300~600 nm의 파장의 광을 가졌는 빛을 조사하여 빛에 의한 전기적 특성 변화를 연구하였다.

**Dp-130** Synthesis and characterization of Poly sodium 4-styrenesulfonate (PSS) graphite oxide 

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Poly sodium 4-styrenesulfonate (PSS) intercalated graphite oxide (GO) were synthesized and characterized by XRD, FTIR, XPS, SEM, and TGA. We have found that PSS was inserted between layers of GO and oriented in plane parallel to planes of GO as a single layer. However, there is evidence of strong chemical bonding between PSS and GO from FTIR and XPS. Dielectric constant and capacitance of the composites in inorganic electrolyte were investigated and will be present.

**Dp-131** Slow Relaxation of Persistent Photoc conductivity and Memory Effect in Organic Thin Film Transistors Using Soluble Star-shaped Molecule 

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로서된 star-shaped 분자가 있는 4(HPBT)-benzene를 이용한 유기 반도체 트랜지스터를 제작하고 기기 및 장 반응 특성을 연구하였다. 4(HPBT)-benzene를 이용한 광 트랜지스터는 7%의 흰색의 경도 6.8~30 μW/cm²에서 높은 경도 반응성을 보였고 이러한 높은 반응 특성을 사용하여 높은 속도의 경도 반응을 이용하여 ~4×10⁴의 높은 반응비율을 얻을 수 있었다. 장에 의해 유도된 전극선의 시간에 대한 특이 늘어난 완화시간을 보이게 되어 그 반응율은 처음에는 빠르고, 그 후 시간이 갈수록 전자적으로 느리게 되는 형태의 stretched-exponential form (Kohlrausch의 법칙)을 따르게 된다. 트랜지스터 전압과 케이트 전압을 변화시키면서 광에 의해 유도된 전극선의 완화시간의 변화를 실험적으로 알리는 늘어난 완화시간을 보이는 지속적인 광 전도도를 이용하여 전기 및 광 유도 메모리 효과를 구현하였다.

**Dp-132** The Electrical Properties and Morphologies of the PVDF-TrFE Films on the Silicon by the Surface Treatment

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PVDF (polyvinylidene fluoride) and its copolymer with TrFE (trifluoroethylene) are representative ferroelectric polymers. Their ferroelectricity, piezoelectricity and pyroelectricity have been intensively studied for application in non-volatile memory in organic electronic devices. It was well known that, by adding a relatively small amount of TrFE to VDF, the PVDF-TrFE copolymer is able to acquire directly β-phase without additives such as heat-treatment, poling or mechanical drawing. On the silicon, however, it is difficult to obtain the β-phase of the PVDF-TrFE thin films by a sol-gel method. In this paper, we attempted to make the β-phase of the PVDF-TrFE on the silicon by the surface treatment. We made a comparative study of piranha, HMDS and no treatment of the silicon. According to the surface treatment, the electrical properties and morphologies of the PVDF-TrFE films on the silicon showed the different properties.

**Dp-133** White organic light emitting devices with blue and yellow emitting layers with effects of doping

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We fabricated white organic light-emitting devices with deep-blue and yellow light-emitting layers (EMLs). A deep-blue EML was MADN doped with BD (blue dopant), and a yellow EML was either TBRb single doped or TBRb and Alq3 co-doped NPB, MADN, BD, and TBRb are 2-ethyl-hexyl-dicyclohexylanthracene, bis-(biphenyl-4-yl)-4-[2,1,4'-terphenyl-4-ylvinyl phenyl] amino, and, 2,8-di-(b-toly)-5, 11-di-[4-(b-toly)phenyl]-6, 12-diphenylnitriphenylene, respectively. Thickness of each EML and BD-doping concentration were systematically varied to optimize performance of two-EML white organic light-emitting devices (OLEDs) with a standard multilayer structure. Alq3 co-guest is expected to assist efficient transfer of energy from NPB host to yellow light-emitting TBRb dopants.

**Dp-134** Size effects in organic nanocrystals 3-methyly-4 methoxy-4-nitrostilbene

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The size effect in semiconductor and metal nanocrystals has been studied extensively and is now well understood. However, the size effect presented in the organic nanoparticles differs fundamentally from the quantum confinement effect observed in semiconductor and metal nanoparticles and the origin of the effect remains unknown. High quality nanocrystals of 3-methyl-4-methoxy-4-nitrostilbene (MMONS) were fabricated using the represenational method in conjunction with sonification. The quantum chemical calculation based on TDDFT method indicates that the configuration of hydrogen bonding and pi-electron stacking in MMONS crystals are the major factors to determine the characteristic absorption spectra of the MMONS nanocrystals, which affects the exciton confinement in the nano structure.

**Dp-135** Charge Storage Properties Of Nickel Disilicide Nanocrystals Embedded In Silicon Dioxide

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Nonvolatile memory (NVM) devices employing nanocrystal floating gates offer many advantages over conventional structures, and there are additional advantages in using metallic nanocrystals instead of semiconductor nanocrystals. In this study we report the direct growth of crystalline nickel disilicide (NiSi2) nanocrystals (NCS) in silicon-rich silicon oxide (SiOx) layers. The formation of a well-defined NiSi2 NC monolayer was also demonstrated by depositing a ultra-thin Ni layer between two SiOx layers. The latter structure is shown to exhibit char-