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fluoropolyether moieties. The fluorinated latex particles were prepared from conventional emulsion polymerizations. The surface properties of the latex films were characterized with various methods such as contact angle measurement, sliding angle measurement and atomic force microscopy.

한윤덕 1PS-202
물(H₂O) 분자의 흡착에 의한 Poly(3-methylthiophene) 나노선의 I-V특성의 변화 연구
 한윤덕, 김기현, 이오백, 박동혁, 주진수[†] 고려대학교 물리학과
 Dodecylbenzenesulfonic acid(DBSA)를 dopant로 이용하고 전기화학적 중합방법으로 poly(3-methylthiophene) 나노선을 합성하였다. 합성된 P3MT 나노선은 SEM, TEM, Raman, UV/Vis 흡수 스펙트럼을 이용하여 확인하였다. 합성된 나노선을 chloroform에 분산시킨 후 photolithography방법으로 제작된 전극이 있는 device위에서 AC bias를 이용하여 나노선이 잘 걸러지게 정렬시킨 후 P3MT 나노선의 I-V특성을 측정하였다. 두 개의 전극에 걸쳐진 P3MT 나노선에 물(D.I. water)을 떨어뜨려서 물분자를 P3MT 나노선에 흡착시킨 후 I-V특성을 측정하여 물분자를 P3MT 나노선에 흡착시키지 않은 I-V특성과 그 차이를 비교하였다.

함명조 1PS-203
Preparation and Characterization of Polypropylene/Poly(L-lactic acid) Blend Fibers with Enhanced Dyeing Property
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 Because of its low cost, low density, good chemical resistance, and good processability, polypropylene (PP) is widely used in the plastic and fiber industries. However, unmodified polypropylene fiber cannot be dyed due to the high crystallinity and absence of dye sites in the molecular chain. In this study, poly(L-lactic acid) (PLA) was blended with PP during melt-spinning process to impart PP fiber dyeing property. Changes in thermal, mechanical, and dyeing properties of the blended PP fibers according to the amounts of PLA were examined. SEM analysis showed that PLA existed as beads in PP matrix, the number and size of which increased with increasing PLA content. PP/PLA blend fibers exhibited enhanced dyeing property, i.e., they could be dyed with disperse dyes. K/S values, indicating apparent dye absorption of the samples, increased with increasing PLA content in the blend fibers.

함명조 1PS-204
MWNT-Reinforced Poly(phenylene sulfide) Nanocomposites
 함명조, 배꽃하얀, 김영호[†] 숭실대학교 유기신소재파이버공학과
 Poly(phenylene sulfide) (PPS)/multi-walled carbon nanotube (MWNT) nanocomposites were prepared by mixing PPS with MWNT or surface-modified MWNT at 320 °C by using a twin-screw extruder. The extrudates were melt-pressed to films and quenched in ice-water. SEM analysis on the dispersity of MWNT in PPS matrix showed that surface-modified MWNT dispersed more evenly than pristine MWNT. Doping with strong oxidants are usually used to increase electrical conductivity of PPS, which may accompany chemical reaction or decomposition of PPS. Addition of MWNT as a filler to PPS film led to the increase in electrical conductivity without any side reactions. Effects of the addition of MWNT on the crystallization and mechanical properties of PPS were also investigated.

함명조 1PS-205
Synthesis and Characterization of Poly(phenylene sulfide)-Grafted Multi-Walled Carbon Nanotubes
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 Generally, poly(phenylene sulfide) (PPS) is synthesized from sodium sulfide and dichlorobenzene at high temperature and high pressure in polar solvents via a conventional condensation polymerization method. In this study, PPS was synthesized from 4-chlorobenzenethiol (CBT) via a self-condensation polymerization method in N-methyl-2-pyrrolidone as a solvent. PPS-grafted multi-walled carbon nanotubes (PPS-g-MWNT) was also prepared from CBT and the 4-chlorobenzoyl functionalized MWNT. Changes in the thermal and electrical properties of PPS and PPS-g-MWNT were analyzed. Electrical conductivity of PPS and PPS-g-MWNT films increased with the addition of MWNT and doping with AsF₅. Tensile strength retentions of the PPS and PPS-g-MWNT films immersed in some acidic (10% of H₂SO₄ and HNO₃) and alkaline (30% of NaOH) solutions at 93 °C for 7 days were exhibited almost 100%.

현우진 1PS-206
High Extraction Efficiency PLEDs Using a 2D Titania Inverse Opal Film
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 These days, many research groups show interest in Polymeric Light Emitting Diodes (PLEDs) for the next generation display due to the low power consumption, the fast reaction time, the wide viewing angle and the simple process of fabrication. In this research area, the high extraction efficiency is one of key points for getting good performance PLEDs. However, it is reported that just 20% of the emitted light from a PLED can escape the device as useful radiation. And another 80% of the light is lost useless because of total internal reflection at the boundaries of layers with different

refractive indices. To extract these waveguided light, we introduced a 2D titania inverse opal film which consists of a regular arrangement of spherical void spaces containing air and solid walls. Due to the uniform arrangement of air and solid walls with a high refractive index, it has photonic crystal property. Using this structure, we enhanced the extraction efficiency.

홍성호 1PS-207
Homopolymer Distributions in Ordered Block Copolymers
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 Mixtures of polystyrene (PS) or deuterated poly(methyl methacrylate) (dPMMA) homopolymers with symmetric P(dS-*b*-MMA) diblock copolymers were investigated by neutron reflectivity. In a thin-film geometry, these mixtures form alternating lamellar microdomains oriented parallel to the substrate surface. By adding deuterated homopolymer or homopolymer in to the labeled copolymer, the spatial distribution of the homopolymer was characterized quantitatively. When the molecular weight of the homopolymer is comparable to the block molecular weight, the homopolymer is confined to the corresponding copolymer domain. With decreasing molecular weight, the homopolymer is more uniformly distributed within the domain. When the molecular weight of the homopolymer is much larger than the block molecular weight, the homopolymer is excluded from the lamellar microdomains, but does not interfere with the preferred lamellar orientation and is incorporated into the multilayered morphology.

홍은표 1PS-208
Effect of Polyhedral Oligomeric Silsesquioxane (POSS) on Poly(ethylene-terephthalate) (PET) Nanohybrids
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 Poly(ethylene terephthalate) (PET)/polyhedral oligomeric silsesquioxane (POSS) nanohybrids were prepared by the melt mixing, where POSS was functionalized with octamethyl-, octaisobutyl- and octaphenyl groups. Thermal, mechanical and dynamic mechanical measurements using TGA, UTM and DMA revealed that the functional group and the concentration of POSS played important roles in defining structure-property relationships. Thermal characterization revealed that the incorporation of octaisobutyl-POSS induced a slight increase in the decomposition temperature compared with unfilled PET. However, the decomposition temperatures of PET/ octamethyl- and octaphenyl-POSS nanohybrids were found to decrease. Also, we found the glass transition temperatures of nanohybrids did not increase in dynamic mechanical measurement. It is believed that the bulkiness of the POSS group created free volume and chain separation, leading to a reduction in the glass transition temperature.

황광춘 1PS-209
에폭시계 극저온용 접착제의 열적/기계적 특성
 황광춘, 이종근[†], 이흥희 금오공과대학교
 극저온용 접착제는 LNG운송선의 초저온 보냉재, 우주산업, 화학산업, 초 진공펌프 등 매우 다양한 곳에 응용되고 있으며, 시장성이 매우 큰 고부가가치의 기능성 접착제 중 하나이다. 이러한 극저온용 접착제는 적절한 유리전이온도, 넓은 온도범위에서 낮은 열팽창계수 변화, 극저온(-250 °C)과 많은 열 사이를 동안 견딜 수 있는 접착력 등 매우 까다로운 요구조건을 충족시켜야 한다. 본 연구에서는 에폭시/아민 경화 시스템을 기반으로 한 극저온용 접착제 배합에 대하여 시차주사열분석(DSC)을 통하여 경화 거동과 경화 후 열적 성질을 분석하여 최적 경화조건을 결정한다. 그리고 동역학분석기(DMA)로 -150~80 °C까지 온도를 변화시키면서 저장탄성률의 변화 및 유리전이온도를 측정하며, 열기계분석기(TMA)로 열팽창계수를 조사한다. 극저온(-196 °C, -250 °C) 및 열 사이를 후(-250 °C~상온) 금속기판과의 접착력을 Lap Shear Test를 통하여 시험한다.

황광춘 1PS-210
Norbornene을 기초로 한 자가치료제와 아민으로 경화된 에폭시와의 계면결합력 평가
 황광춘, 이종근[†], Michael R. Kessler[†] 금오공과대학교; [†]Dept. of Materials Science and Engineering, Iowa State Univ., Ames, IA, USA
 자가치료는 모재에 발생한 크랙이 진행되어 마이크로캡슐을 관통되면서 캡슐안의 자가치료제가 크랙면사어로 흘러 들어가 모재에 분포하고 있는 촉매와 개환중합반응(ring-opening metathesis polymerization(ROMP))하여 재료의 수명을 연장시키는 기술이다. 자가치료제와 수지와와의 결합력은 자가치료기능을 향상시키는데 매우 중요하다. 본 연구에서는 서로 다른 종류의 norbornene 기를 가지는 자가치료제와 에폭시사이의 접착력을 single lap shear test 방법(ASTM D5868)을 통하여 조사하였다. 자가치료제는 endo-dicyclopentadiene(DCPD)와 5-ethylidene-2-norbornene(ENB) 및 그들 블렌드, 접착력을 증가시킬 수 있는 수산기 그룹을 가지는 5-norbornene-2-methanol (NBM), 그리고 신형구조를 갖는ENB의 접착력을 향상시키기 위하여 본 연구실에서 합성한 norbornene 가교제를 사용했다.

황동준 1PS-211
Fabrication of Nanostructured Multilayers from Crosslinkable Block Copolymers
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 In this work, we fabricated three dimensional nanotemplates using crosslinkable block copolymers (BCPs). We synthesized crosslinkable BCP, P(S-*b*-(S-N3))-*b*-PMMA, in