

2012. 2. 10 (금)

ORAL SESSIONS II

2월 10일(금) 구두발표

광과학 III (F2B-I)

10:45-12:15

좌장: 변지수(경북대)  
102(B)

10:45

F2B-I 1 일반적인 각도에서의 이튼 렌즈

김상훈(목포해양대)

렌즈의 굴절률을 조절하여 빛의 굴절 경로를 변화시키는 방법이 연구되어 왔는데 그 대표적인 것이 이튼렌즈다. 종래에는 90도, 180도 등 특수각에 대해서만 연구 되어 왔는데 이를 모든 굴절각으로 일반화하고 그 결과를 컴퓨터로 확인했다.

11:00

F2B-I 2 테이퍼링 편광유지 광자결정 광섬유의 복굴절 증가

강철주, 심영보(한양대), 이상배(KIST), 한영근(한양대)

In this paper, we demonstrate the increased birefringence by tapering a polarization maintaining photonic crystal fiber (PM-PCF). With the Sagnac loop configuration, the measured birefringence of the PM-PCF after tapering was increased from  $1.14 \times 10^{-3}$  to  $1.46 \times 10^{-3}$ , corresponding to 21.9 % increase in the birefringence.

11:15

F2B-I 3 마이크로 광섬유 링 공진기 기반 다중 종파모드 억제 기술 연구

김선덕, 윤민석, 한영근(한양대)

We demonstrate a novel optical fiber laser with suppression of multiple longitudinal modes by using a microfiber-based-ring cavity. The microfiber-based-ring cavity with the fiber diameter of  $\sim 2 \mu\text{m}$  and the FSR of the cavity of 27.49 GHz was exploited. The suppression of the multiple longitudinal modes was measured to be  $\sim 10 \text{ dB}$ .

11:30

F2B-I 4 Ytterbium-doped phosphosilicate 고출력 광섬유 증폭기의 온도 의존성

Seung Jong Lee, Geun Chang Choi, Hyuntai Kim, Luis Alonso Vazquez-Zuniga, Yoonchan Jeong(서울대)

Characterization of temperature dependent performance of a fiber amplifier is very important especially in high power regime. In this paper, we present experimental studies regarding temperature dependence of an ytterbium (Yb) doped-phosphosilicate fiber. Phosphosilicate based Yb-doped fibers demonstrate both negligible photo darkening, longer lifetime than aluminosilicate based fibers and higher damage threshold than the phosphate glass based fibers. Characterization of fiber cross-sections (emission and absorption) and emission lifetime are carried out for temperatures between 25 °C and 150 °C. The lifetime of the Yb-doped phosphosilicate fiber decreased from 1,502ms at room temperature to 1,479ms at 150 °C. Emission spectra of the fiber showed clear difference in peaks and valleys where each wavelength of the emission spectra corresponds to different emissions from metastable states as function of temperature.

11:45

F2B-I 5 나노임프린트 리소그래피를 이용해 형성된 나노구조 안료-주석-산화물 전극 기반 유기태양전지

김준태, 김규원, 조성윤, 이순일, 하나영(아주대)

ITO nanopatterns by nanoimprint lithography (NIL) in an organic solar cell (OSC) to improve the device performance were demonstrated. The nanopatterns were formed on ITO ink-coated ITO glass substrates using the NIL with pre-made PDMS mold. Atomic force microscopy showed that well-aligned nanopatterns with a period of about 400nm were formed on the substrates. The large surface to volume ratio in the anode by the ITO

nanopatterns increases the hole mobility as well as the light absorbance by light scattering, boosting power conversion efficiency from 2.37% to 2.65%, corresponding to a 12% enhancement under one-sun illumination condition

12:00

F2B-I 6 변환한계 아토초 펄스 생성을 위한 아토초 처프 보상

고동혁(KAIST), 김경택(NRC), 남창희(KAIST)

The generation of transform-limited attosecond high-harmonic pulses has been investigated. The inherent chirp contained in high-harmonic pulses was compensated in a medium with negative group delay dispersion. A broadband harmonic spectrum, up to 300 eV corresponding to a transform-limited duration of 34 as, could be produced in a simulation by applying mid-infrared laser pulses. Generated harmonic pulses were compressed from 83 as to 38 as after propagating through a Xe gas cell. The generation of isolated attosecond pulses with chirp compensation could be accomplished by incorporating the ionization gating technique. The generation of near transform-limited isolated attosecond pulses will be valuable for exploring ultrafast phenomena in atoms and molecules.

디스플레이 I (F2D-VII)

10:45-12:15

좌장: 고재현(한림대)

104(D)

10:45(초청논문)

F2D-VII1 투명 액정 디스플레이 기술 동향

김재훈(한양대)

투명 디스플레이란 화면의 뒷배경이 비춰 보일 수 있는 투명한 전자소자를 이용하여 정보인식, 정보처리, 정보전달의 기능을 가지는 디스플레이를 말한다. 본 논문에서는 투명디스플레이의 응용분야, 개발현황 및 전망에 관하여 알아보고자 한다.

11:15(초청논문)

F2D-VII2 OLED 조명 기술 동향

이정익, 조두희, 추혜용(ETRI)

면광원이면서 확산광의 특성을 갖는 OLED 조명은 실내용 조명으로서 적합하여 고효율 특성 확보를 위한 소자/소재 및 광추출 기술 등이 연구되고 있다.

11:45

F2D-VII3 전사법을 이용하여 제작된 편광 OLED 소자

노희연, 박창섭, 박지섭, 박도희, 이호준, 김학린(경북대)

본 연구에서는 OLED의 발광층 정렬을 통하여 패턴 된 편광 빛을 얻고 SAM을 이용한 surface energy 제어를 하여 transfer printing하는 방법을 연구하였다.

12:00

F2D-VII4 확산판의 양방향산란분포함수 측정 및 이를 이용한 전산모델링 연구

노보람, 김영주, 이준호(공주대)

In this study, using the scattering properties of the diffusier to measure the bidirectional scattering distribution function, the LightTools program was conducted using the optical simulation.