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I-P016

Effect of Mass Transport on The Adsorption of Albumin to the Gold Surface 유다운, 김상운(강원대), 조용구, 이자일, 김현정, 김중원 ((주) 바이오메드랩) Recently, surface plasmon resonance (SPR) biosensors provide an increasingly popular method for investigating biomolecular interactions. Using the SPREETA™ that is a SPR based sensor, we studied the effect of mass transport on the adsorption of albumin to the gold surface. The mass transport effect dominates the adsorption rate when the binding of albumin onto the gold surface becomes more dominant than the diffusion of albumin near the surface. Under limiting conditions of the mass transport, initial adsorption rate was found to be proportional to $C\nu^{1/3}$ (C : bulk albumin concentration, ν : flow rate), which is in good accordance with theoretical expectations.

I-P017

비선형 광학 결정을 이용한 피코초 영역에서 시간 분해 분광학 장치 구성과 응용 이승목, 이범구 (서강대학교 물리학과) 피코초 Nd:YAG 레이저의 3차 조화파(355 nm)를 비선형 광학 결정인 BBO(β -BaB₂O₄)에 입사시켜 400 nm 에서 800 nm 정도 넓은 파장의 OPG(Optical Parametric Generation) 펄스광을 발생시켰다. 이 광원은 많이 알려져 있는 여러 가지 액체나 결정의 유도 라만 효과나 자체 집광 현상 등에 의한 백색광 발생에 비해 훨씬 안정하며 효율도 높은 것으로 관찰되었으며, 발생된 광을 probe 광으로 사용하여 시간 분해 분광학 장치를 구성하였다. 이런 시간 분해 분광학 장치는 레이저 펄스폭인 40 피코초 정도의 시간 분해능을 가지며 이를 이용하여 Polythiophene의 Absorbance 변화와 Zeolite에 첨가된 유기물에 의한 diffuse reflectance의 변화를 수십 피코초에서 수 나노초까지의 시간 영역으로 관찰하였다.

I-P018

Global Coherence in Coherent-Mode Representation of Optical Field Kisik Kim and Dae-Yoon Park (Inha University) The cor-

relation function of an optical field in the space frequency domain is known to be the cross-spectral density and it generally admits a series expansion, which is called the coherent-mode representation. In this paper, we examine the physical significance of the coherent-mode representation and investigate its contents in terms of global coherence. We obtain the coherent-mode representations for a Gaussian correlated and a Bessel correlated cross-spectral densities and compare their global coherence.

I-P019

Elongated speckle pattern while annealing p-type porous silicon. 김근배, 홍정기(포항공과대학교), 이민규, 신현준(포항가속기연구소), 이기원, 김영유(공주대학교) Using partially coherent soft x-rays from the U7 undulator at the Pohang Light Source, we observed speckle patterns from p-type porous silicon, while annealing the sample. The speckle patterns were observed in reflection geometry with 3.5-degree incident angle at photon energies 90 to 110 eV near the Si 2p absorption edge. The reflected patterns were mostly specular reflection below 900°C, and were elongated in vertical direction and showed speckle patterns above 900°C. This change was attributed to the increase of roughness and average grain size of the sample, as was partly proved by the AFM measurement after the experiment. And most interestingly, speckle patterns showed strange changes as a function of photon energy. The cause of this changes was related to the reflectivity and absorption of Si and porous silicon.

I-P020

비선형분자의 구조개선에 의한 광굴절폴리마의 특성 G.B. Jung, K. Honda, T. Mutai, O. Matoba, T. Shimura, K. Araki, and K. Kuroda(IIS, Univ. of Tokyo.), 장차익, 최승평, 양희룡, 양해정(조선대) Guest-Host형 Photorefractive Polymer에서는 Poling에 의해 형성된 비선형분자의 복굴절계자가 큰 굴절률 변화분포를 형성하므로 광굴절현상을 증가시킨다. 또한 비선형분자의 고속전장배향에 의한 고