

Er-M(M=Zr, Ti) 복합 알콕사이드로부터 제조된 졸-겔 필름 코팅막의 광발광 특성  
Er Luminescence Properties of Sol-Gel Films prepared using Er-M(M=Zr, Ti)  
double alkoxide

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Planar waveguide amplifier provides optical gain in devices less than tens of centimeters long, as opposed to fiber amplifiers with lengths of typically tens of meters. To achieve the same amount of gain between the planar and fiber optical amplifier, much higher Er doping levels responsible for the gain than in the fiber amplifier are required due to the reduced path length. Simply high concentrated Er doping into matrix might cause the harmful optical clustering, responsible for the non-radiative quenching or upconversion. In this studies, we try to minimize Er ion-ion interactions using Er-M(M=Zr, Ti) double alkoxide which is synthesized from the reaction of  $\text{ErCl}_3$  and M Alkoxide with potassium isopropoxide. The synthesized Er-M double alkoxides were mixed the partially hydrolyzed tetraethylorthosilicate solution, and followed by conventional sol-gel process to get the gel films. Coatings on Si substrate were characterized by X-ray diffraction, FT-IR, and N-IR fluorescence spectroscopy. The luminescence properties will be discussed from peak intensity and life time