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The Fabrication and Properties of the Mg_2SiO_4 and MgB_4O_7 Thermoluminescent Phosphors, Young-Kook Kim, In-Ho Sohn, Kun-Sik Chae, Su-Dae Lee, Chung-Sik Sul (Kyungnam University, Physics), Kyung-Suk Noh, Jae-Heung Song (Masan College, Radiology), Sang-Yun Lee (Kyungpook National University, Physics), Sih-Hong Doh(Pukyoug National University, Physics)

The Mg_2SiO_4 and MgB_4O_7 : Tb, Tm, Dy, La, Ho and Nd TL phosphors have been prepared by sintering Mg_2SiO_4 and MgB_4O_7 powders doped with activation materials, Tb, Tm, Dy, La, Ho and Nd at 1250℃ and 550℃ for 2hours in argon atmosphere. Their physical characteristics are investigated the activation energy of main peak has been estimated by the peak shape method.
The Mg_2SiO_4: Tb, Tm, Dy, La, Ho and Nd TL phosphors have been prepared by sintering Mg_2SiO_4 after doping the transition elements Tb, Tm, Dy, La, Ho and Nd. The heating rate of this TL phosphors is 20℃/sec. The maximum peak of the Mg_2SiO_4: Tb, Tm, Dy, La, Ho and Nd concentrations are 2～3 wt.%. The estimated activation energies are 0.63～1.40 eV.
The MgB_4O_7:Tb, Tm, Dy, La, Ho and Nd TL phsphors have been prepared by sintering MgB_4O_7 after doping the transition elements Tb, Tm, Dy, La, Ho and Nd. The heating rate of this TL phosphors 20℃/sec. The maximum peak of the MgB_4O_7 : Tb, Tm, Dy, La, Ho and Nd TL glow curvers are found in at the 220℃ when Tb, Tm, Dy, La, Ho and Nd concentrations are 2～3 wt.%. The estimated activation energies are 0.72～1.55 eV.
The Mg_2SiO_4 and MgB_4O_7 TL phoshpors are the most sensitive X-rays among the other materials. The dose responses of TLD are linear up to intensity of X-rays.
The TL phosphors prepared in this work may he utilized to radiation sensor elements became of their high sensitivity to low energy radiation.

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The Fabrication and Properties of the K_2SO_4 and Na_2SO_4 Thermoluminescent Phosphors, Kyung-Suk Noh, Jae_heung Song(Masan College, Radiology), San-Yun Lee(Kyungpook National University, Physics), Sih-Hong Doh(Pukyung National University, Physics), Young-Kook Kim, In-Ho Sohn, Kun-Sik Chae, Su-Dae Lee, Chung-Sik Sul(Kyungnam university, Physics)

The K_2SO_4:Dy and Na_2SO_4:Dy TL phosphors are obtained by sintering the K_2SO_4 and Na_2SO_4 powders doped with 0.2～5 wt.% Dy at 1100℃ and 850℃ for 2 hours in argon atmosphere.
Glow curve of TLDs increased TL intensity and temperature of peak appears to the low temperature when the heating rate is 10℃ /sec ～ 25℃/sec
When heating rate 20℃/sec, the activation energy of the main peak has been estimated by the peak shape method. The activation energy, frequency factor and kinetic order of K_2SO_4:Dy TL process of main glow peak (175℃) are found to be 1.53 ± 0.02 eV, $3.32 \pm 0.03 \times 10^{13}$/sec and 1.68 ± 0.02, respectively. The fading rate is less than 20% for 900 hours when the phosphors were stored in the dark place at room temperature. That case in Na_2SO_4:Dy TL process of main glow peak (101℃) are found to be 1.84 ± 0.02 eV, $6.61 \pm 0.04 \times 10^{13}$/sec and 1.47 ± 0.03, respectively. The fading rate for 900 hours is less than 20% when the phosphors were stored in the dark place at room temperature.
The K_2SO_4:Dy and Na_2SO_4:Dy thermoluminescent phosphors are the most sensitive to X-rays among the other materials. The dose responses of K_2SO_4:Dy and Na_2SO_4:Dy TLDs are liner up to

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LUMINESCENT PROPERTIES OF NOVEL POLY(TERPHENYLENE α-CYANO VINYLENE) DERIVATIVE, D. S. LEE, S. G. AN, J. H. AHN, D. C. SHIN and S. K. KWON(Dept. of Polymer Sci. & Eng. and RRCAT, Gyeongsang National Univ. Chinju, 660-701, Korea)
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Abstract : A number of different factors such as the quantum efficiency, charge carrier mobility, durability, and thermal stability influence the performance of polymer light-emitting devices. The use of multilayer structures was first demonstrated by Tang and VanSlake. They reported that the incorporation of hole transporting layer (HTL) and electron transporting layer (ETL) improved device efficiency by enhancing charge mobility and confining hole and electron recombination to the emitting layer. Electron transporting materials including oxadiazole, triazole, triazine, -CN, quinoxaline group, etc. have been reported in a great number of literatures. We have already reported the electron transporting polymers containing 1,3,4-oxadiazole, 1,2,4-triazole and 1,3,4-thiadiazole. In this article, the synthesis and luminescent properties of the novel polymer containing -CN group will be discussed.
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FABRICATION AND CHARACTERISTICS OF HETERO-JUNCTION EL DEVICES WITH CHARGE TRANSPORT LAYER AND PPV AS EMITTING LAYER, LEE-SOON PARK and SUNG-JIN KIM(Dept. of Polymer Science, Kyungpook National University, Taegu, 702-701, Korea), WOO YOUNG KIM, SUNG-HOO JU, and CHOONG HUN LEE(Hyundai Electronics Industries Co., Ltd., Ichon, Kyoungki-do, 467-701, Korea)

Organic electroluminescence device(ELD) with hetero-junction structure were fabricated utilizing poly(*p*-phenylene vinylene), PPV as emitting layer in addition to electron transport layer(ETL) or hole transport layer(HTL). 2-(4-Biphenyl)-5-(4-tert-butylphenyl)-1,3,4-oxadiazole(PBD) and poly(N-vinyl carbazole) were used as electron transport agent and hole transport material, respectively. Copolymers with stilbene type comonomer such as poly(styrene-co-PVTS), poly(styrene-co-MeO-PVTS) and poly(styrene-co-MeO-ST) were synthesized to be used as a matrix polymer to disperse electron transport agent (PBD). Luminance intensity of ITO/PVK/PPV/Mg and ITO/PPV/PBD-polymer matrix/Mg EL devices were dependent on the thermal conversion temperature of PPV emitting layer in the order 140 > 180 > 220 > 260°C. In the ITO/PPV/PBD-polymer matrix/Mg EL device, the luminance intensity of EL device was highest with poly(styrene-co-PVTS) as matrix polymer.

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