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### Structures, luminescence and magnetic properties of $K[Eu_{1-x}Gd_x(salen)_2]$ complexes

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Complexes of  $K[Eu_{1-x}Gd_x(salen)_2]$  ( $x=0-1.0$ ) were synthesized and their structural and magneto-luminescent properties were investigated. The complex of  $K[Eu(salen)_2]$  crystalized in the monoclinic  $P21/n$  space group. Exciting the Eu(III) complex with near-UV light resulted in sensitized red luminescence by the energy transfer from the ligand salen to the Eu(III) ion. For  $K[Eu_{1-x}Gd_x(salen)_2]$  in acetonitrile, the quantum yield of the sensitized luminescence (qsens) of  $x=0$  was 49%. With increasing  $x$ , qsens increased and at  $x=0.9$  qsens became the maximum (64 %). Above  $x=0.8$ , with increasing  $x$ , qsens decreased. The molar susceptibility of  $K[Eu_{1-x}Gd_x(salen)_2]$  were investigated as a function of  $x$  using a MPMS SQUID magnetometer. The evaluated Curie constant ( $C$ ) satisfied the linear relation of  $C$  ( $emu K$ )= $5.202.5x+2.6$ .

#### Biography

Jisuk Lee is currently a master degree student at the School of Chemistry and Biochemistry, Yeungnam University. Her current research interests focus on luminescence of lanthanide metal complexes.

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