# Synthesis of Lanthanide Containing Nematic Metallomesogens

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Last few years our efforts were concentrated on preparing and investigation lyotropic and thermotropic lanthanide containing metallomesogens.

New nematogenic ligands (β-diketones) for complexes of lanthanides have been synthesized. The synthetic conditions and thermal behaviour of the metallomesogens $[Ln(DDk_{R1\text{-}R2})_3(Bpy_{17})]$, where Ln = La, Nd, Eu, Gd, Tb, Dy, Er, Yb; $DDk_{R1\text{-}R2} = C_nH_{2n+1}\text{-}C_6H_{10}\text{-}C_6H_4\text{-}C(O)\text{-}CH_2\text{-}C(O)\text{-}C_mH_{2m+1}$; $Bpy_{17}$ = 5,5`-diheptadecyl-2,2`-bypiridine and some other adducts have been investigated. Correlation between liquid crystallinity of ligands and appropriate complexes were not detected. The molecular values of anisotropies of magnetic susceptibilities from magnetic birefringence were calculated. Capabilities of complexes alignment in magnetic field were established via comparison molecular values with the mesophases magnetic anisotropies.

At the first time was synthesized lyotropic lanthanide containing system based on lanthanide nitrate and surfactant in decanol. Phase diagram of 3-components system will be presented.

For both kind of LC in aligned state AFM-SEM data will be exhibit. Luminescence efficiency dependence on orientation of new LC will be evaluated.

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References

1. Yu.Galyametdinov, A.Knyazev, V.Dzhabarov, T.Cardinaels, K.Driesen, C.Görller-Walrand, K.Biennemans. *Advanced Materials*. 2008, 20, 252-257.