

## Friend or Foe? The Role of Solvents in Non-Triplet, Intraligand Charge Transfer Sensitization of Lanthanide(III) Luminescence

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### *Supporting Information*

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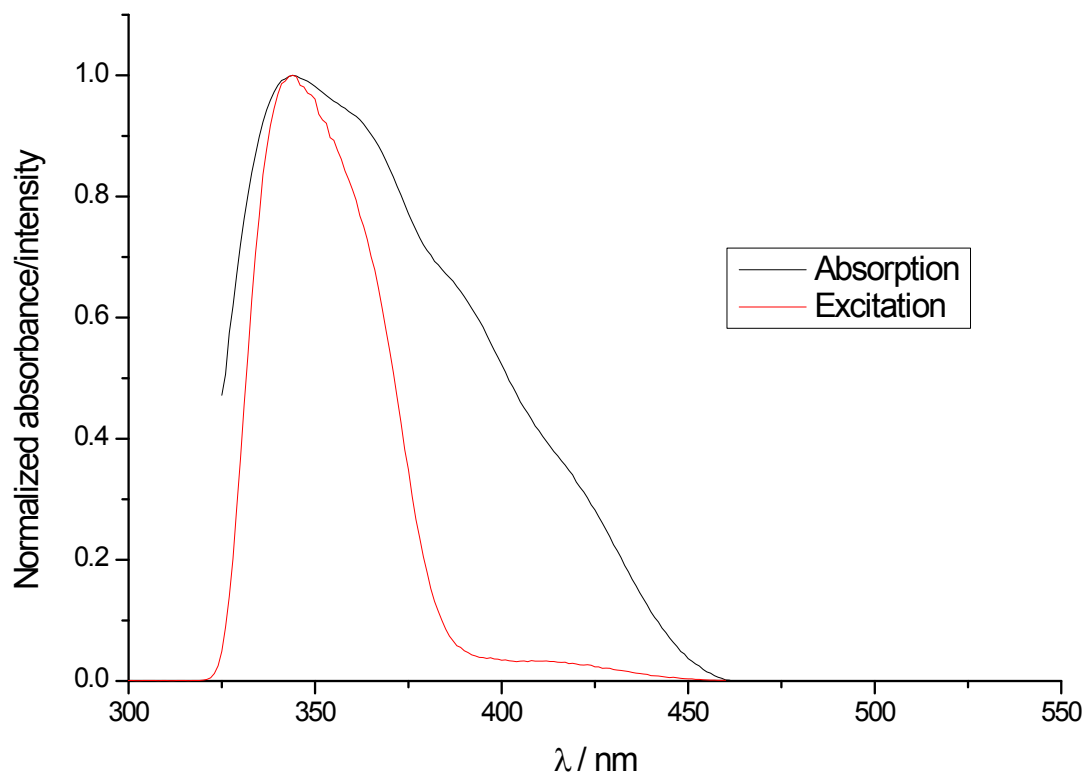


Figure S1 Normalized absorption and excitation spectra of **Eu-1** in acetone

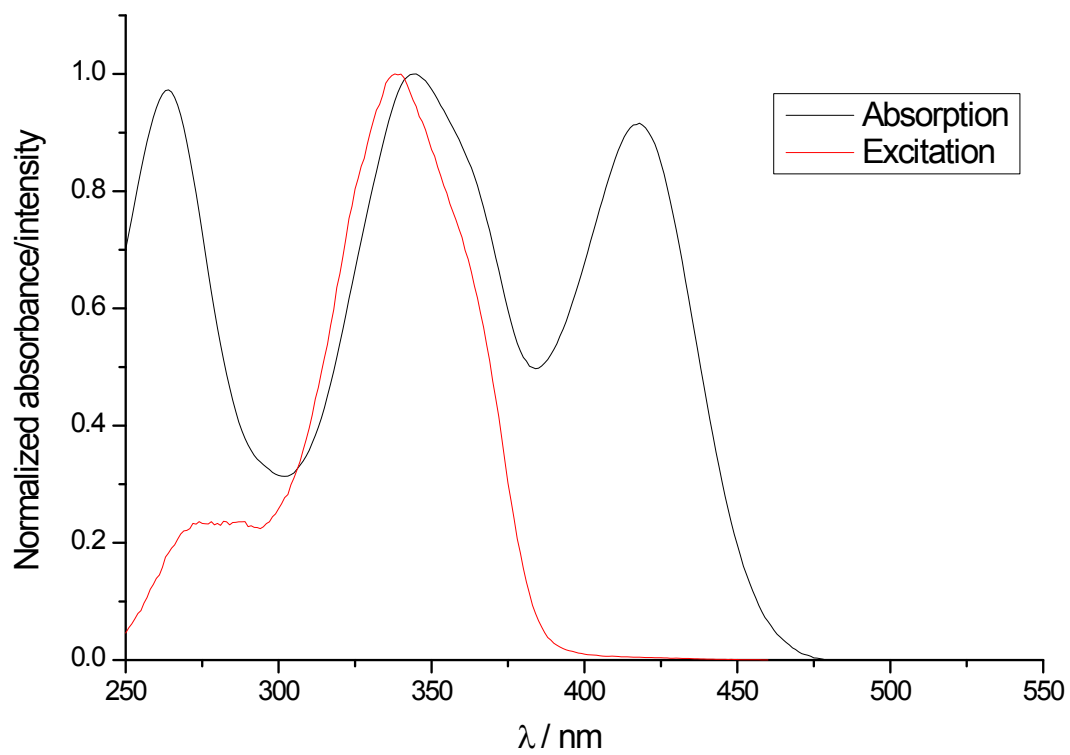


Figure S2 Normalized absorption and excitation spectra of **Eu-1** in acetonitrile

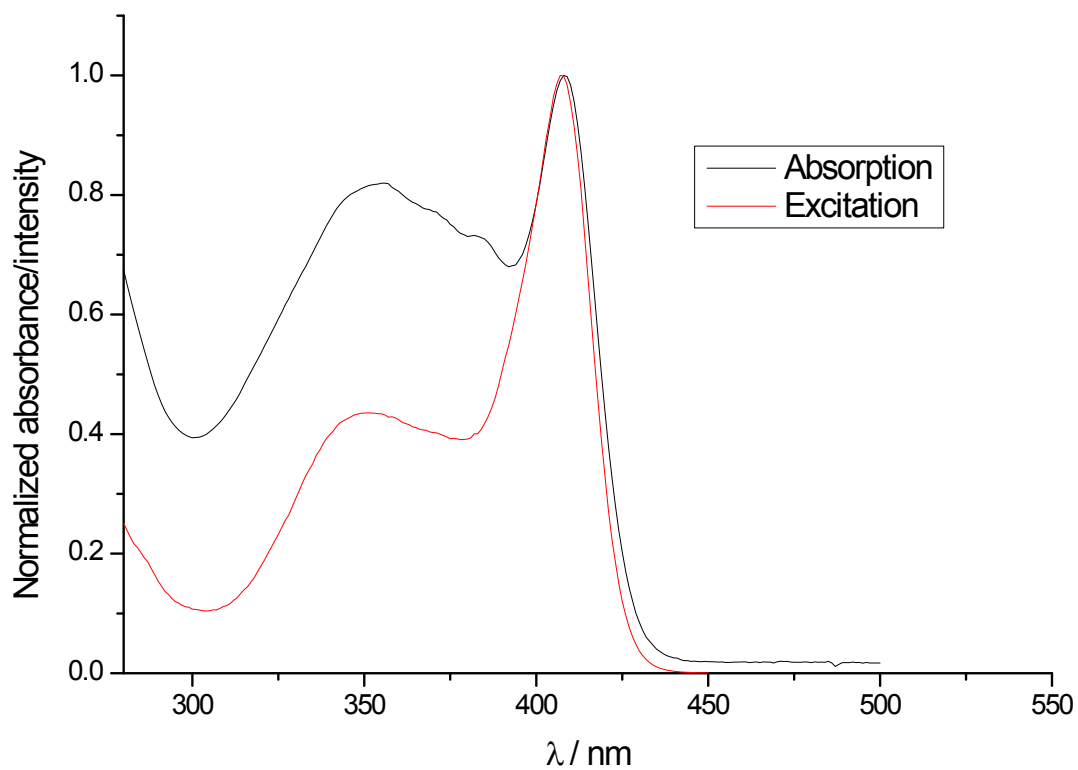


Figure S3 Normalized absorption and excitation spectra of **Eu-1** in  $\text{CCl}_4$

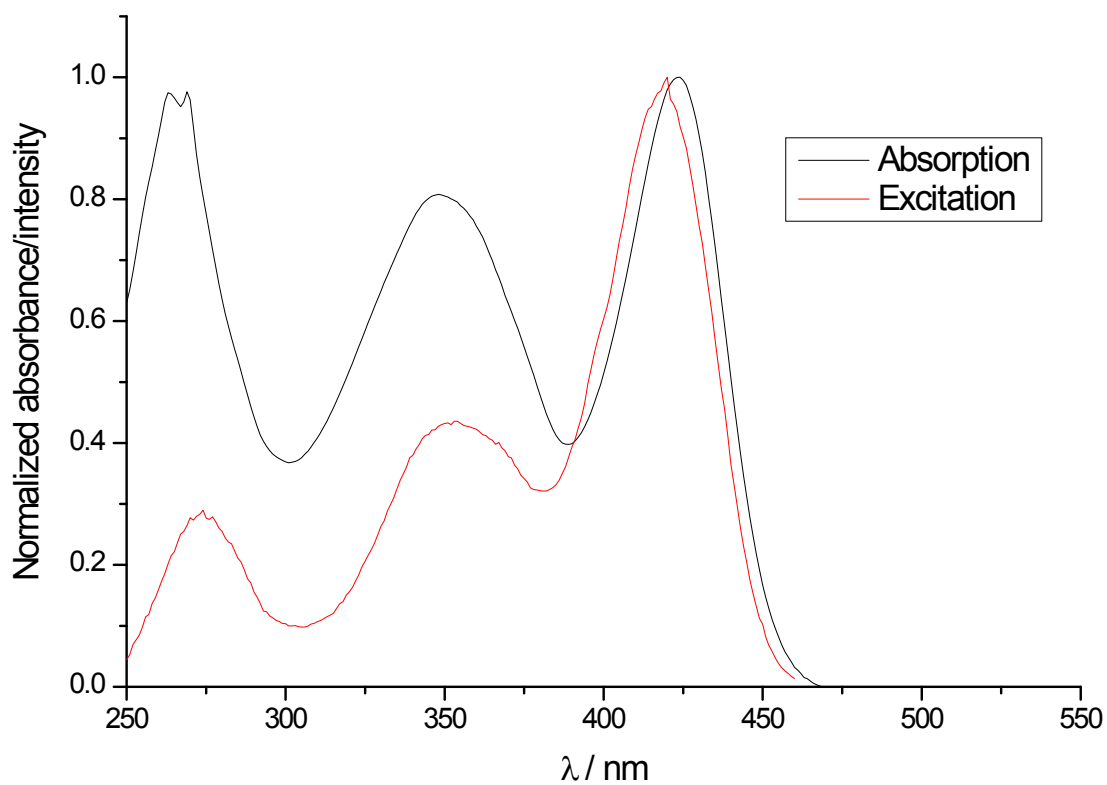


Figure S4 Normalized absorption and excitation spectra of **Eu-1** in chloroform

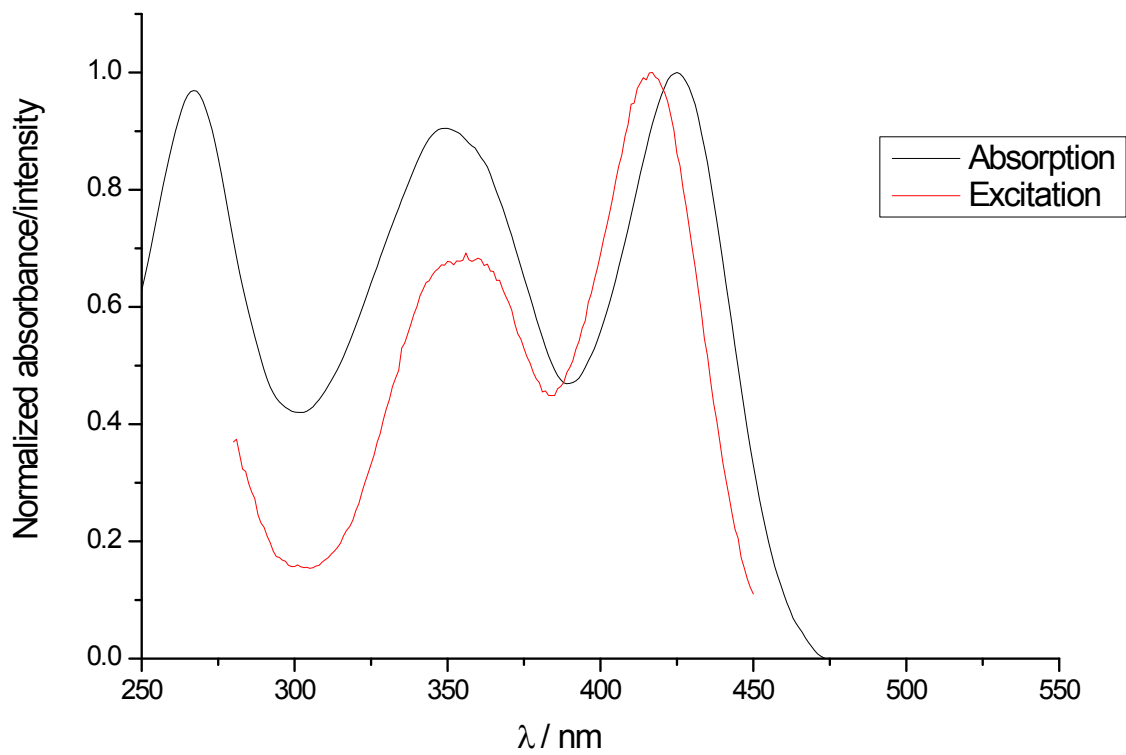


Figure S5 Normalized absorption and excitation spectra of **Eu-1** in 1,2-dichloroethane

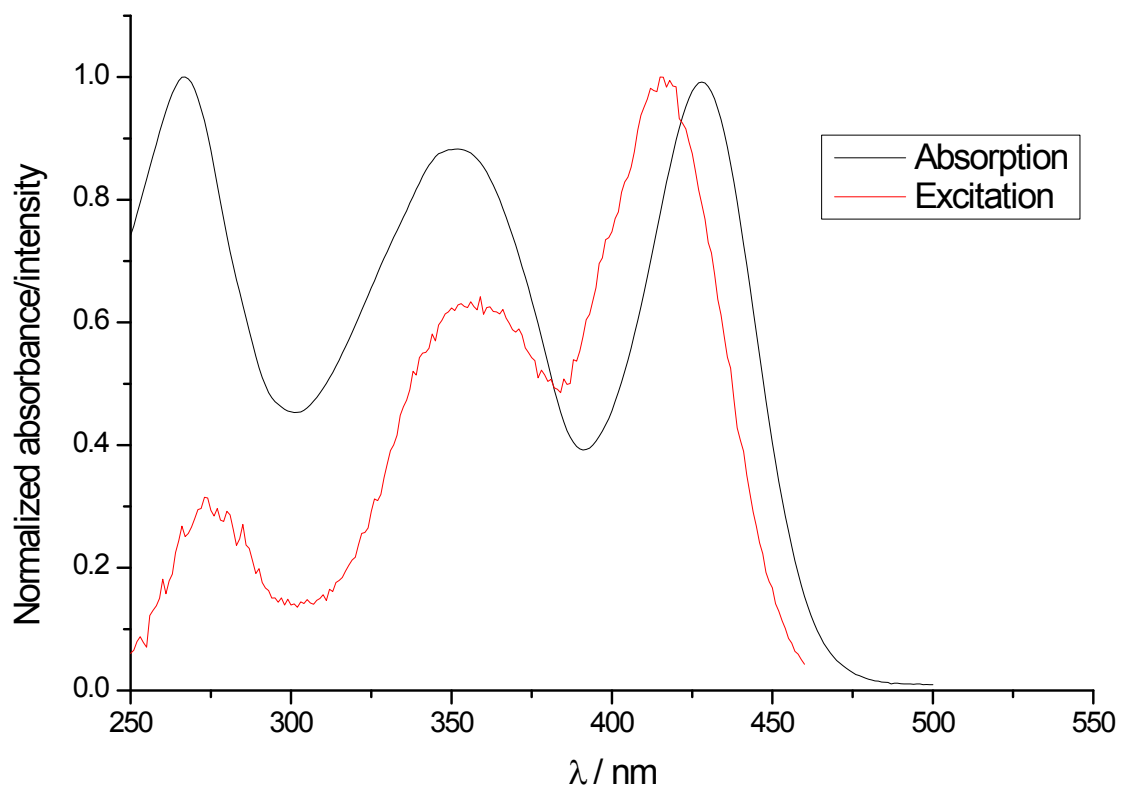


Figure S6 Normalized absorption and excitation spectra of **Eu-1** in dichloromethane

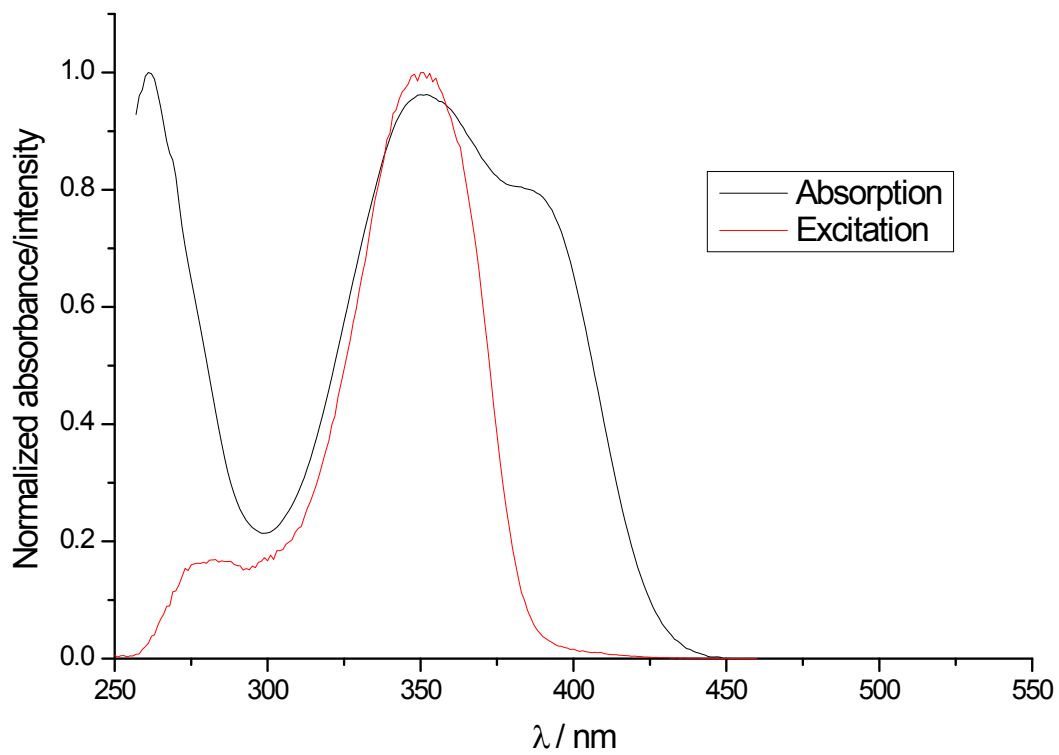


Figure S7 Normalized absorption and excitation spectra of **Eu-1** in DMSO

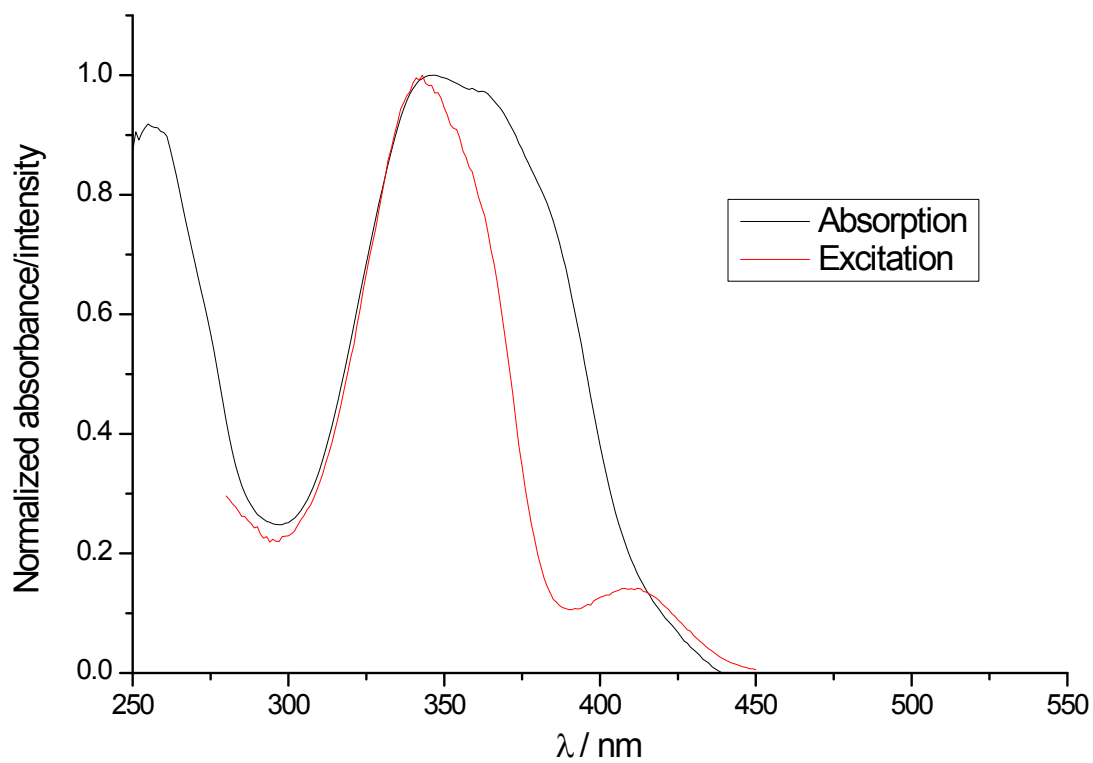


Figure S8 Normalized absorption and excitation spectra of **Eu-1** in ethyl acetate

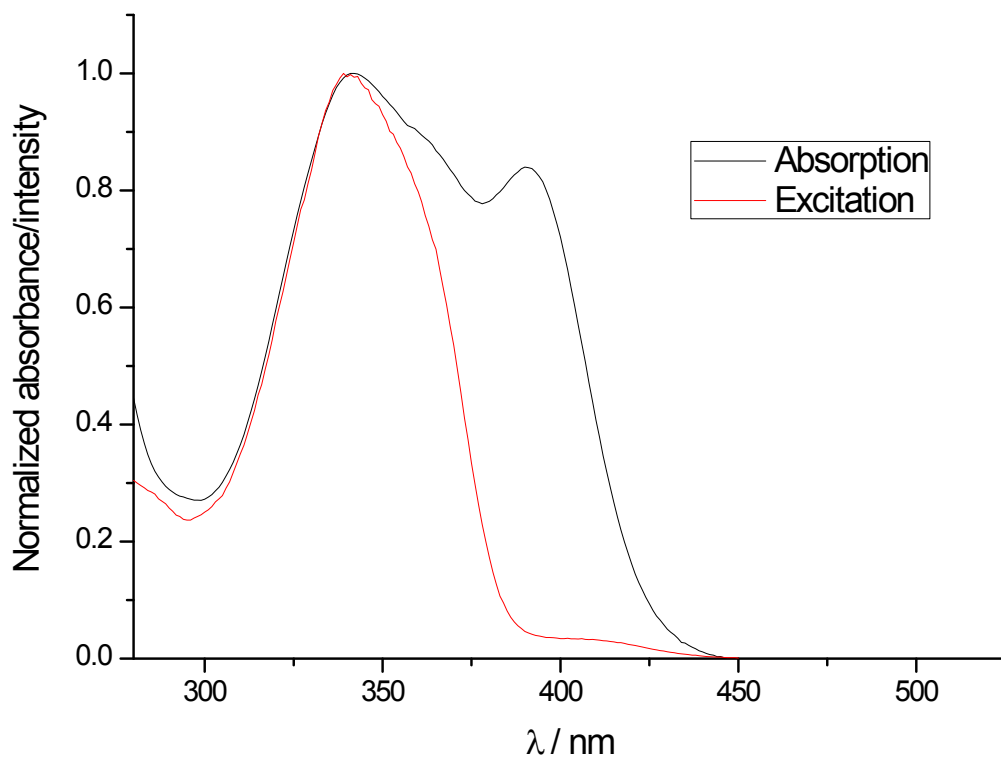


Figure S9 Normalized absorption and excitation spectra of **Eu-1** in isopropanol

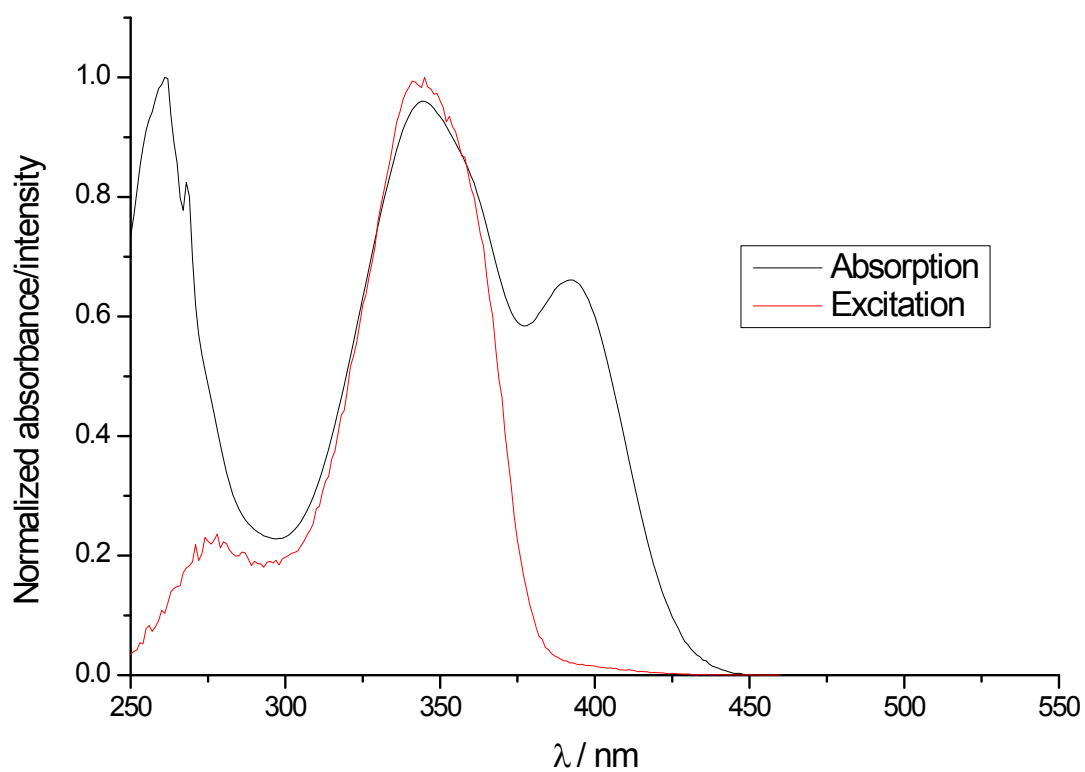


Figure S10 Normalized absorption and excitation spectra of **Eu-1** in methanol



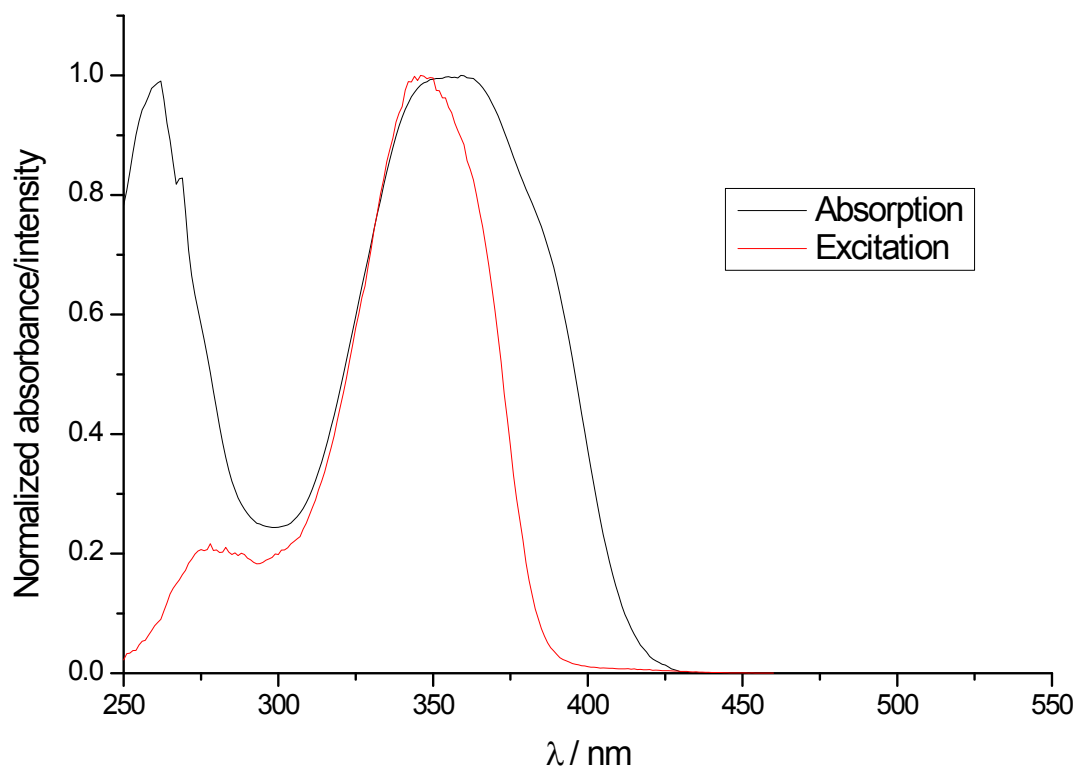


Figure S11 Normalized absorption and excitation spectra of **Eu-1** in tetrahydrofuran

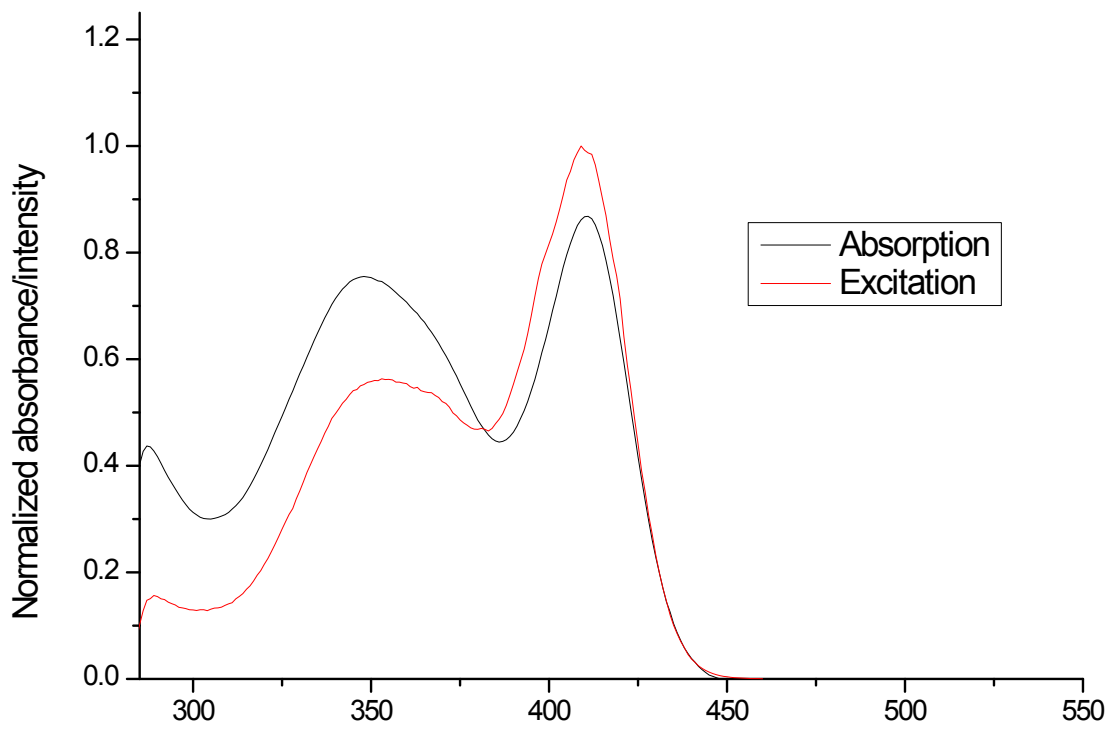


Figure S12 Normalized absorption and excitation spectra of **Eu-1** in toluene

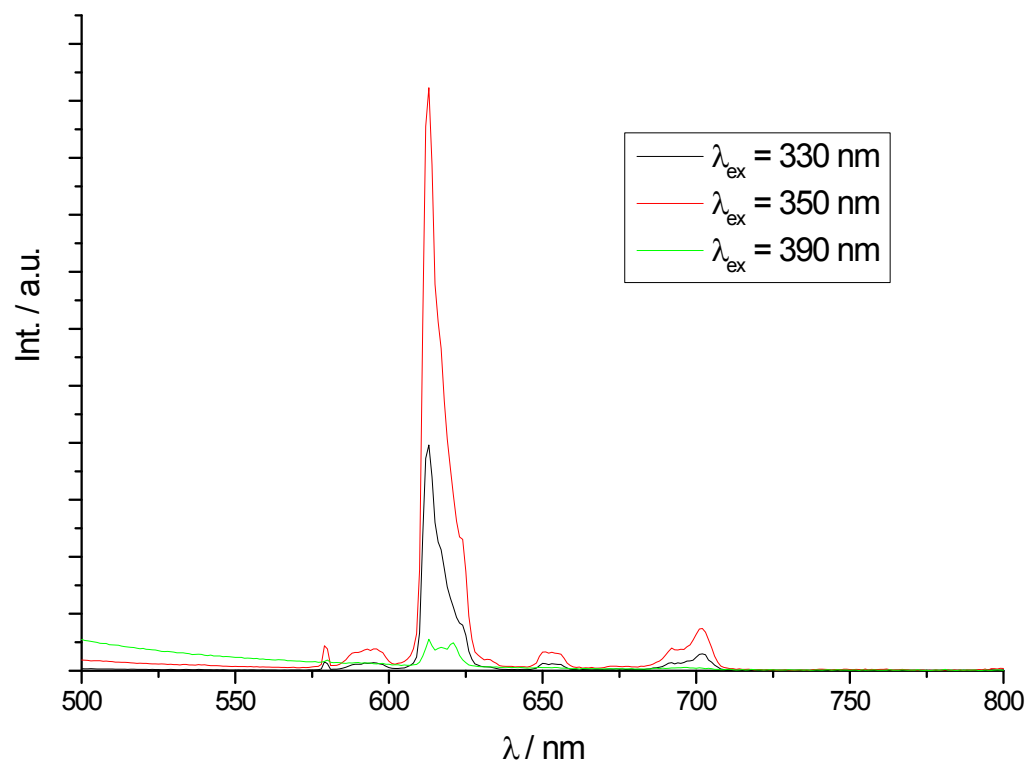


Figure S13 Emission spectra of **Eu-1** in acetone

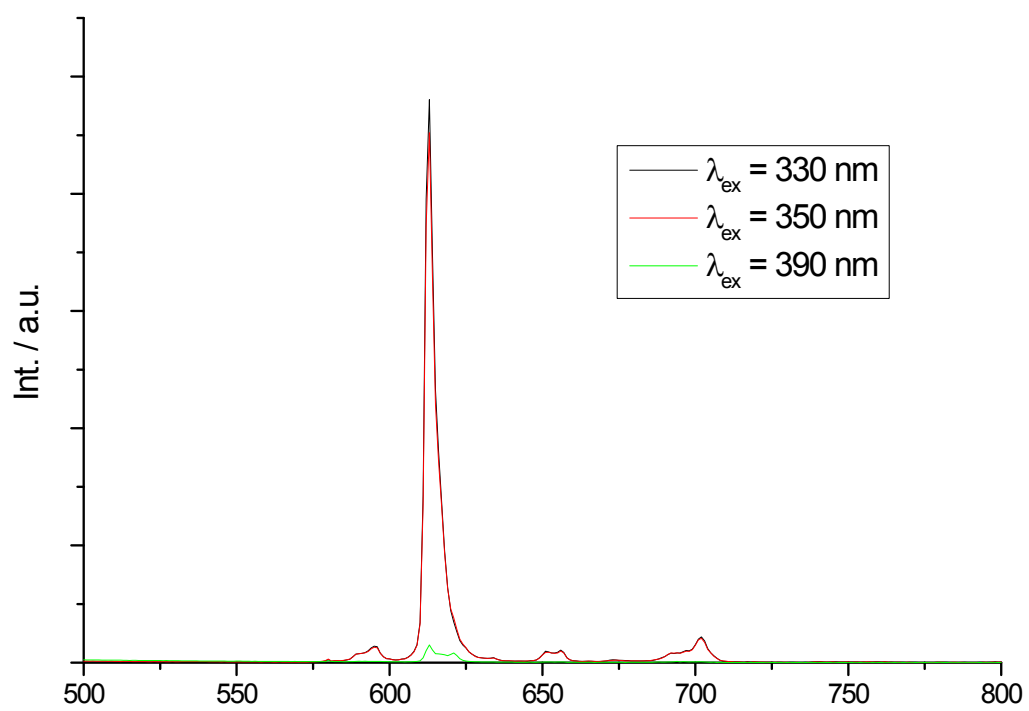


Figure S14 Emission spectra of **Eu-1** in acetonitrile

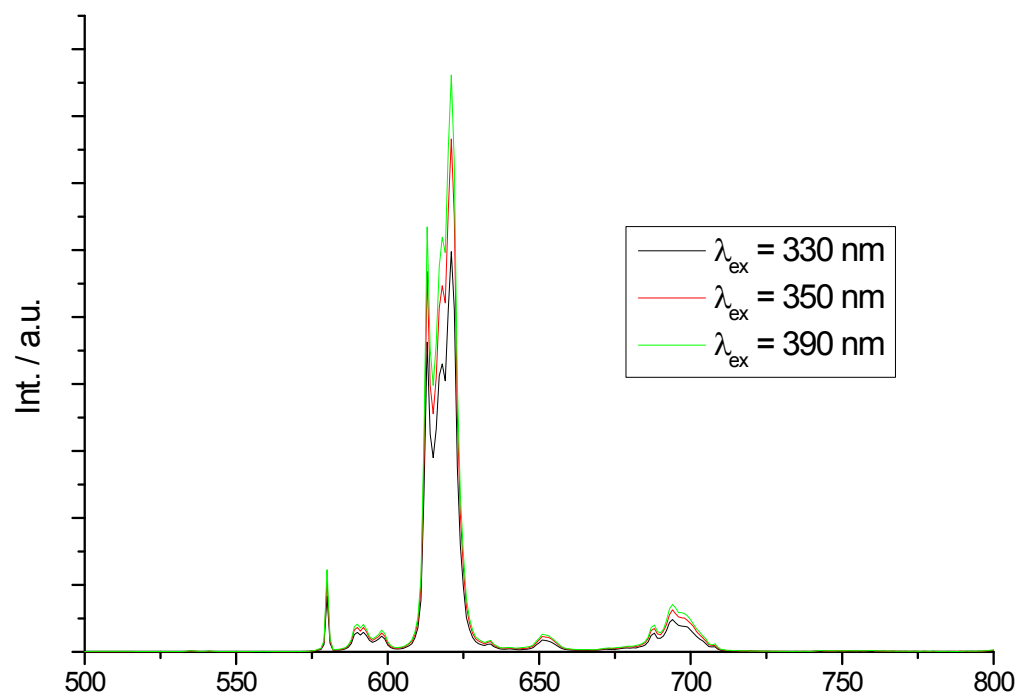


Figure S15 Emission spectra of **Eu-1** in CCl<sub>4</sub>

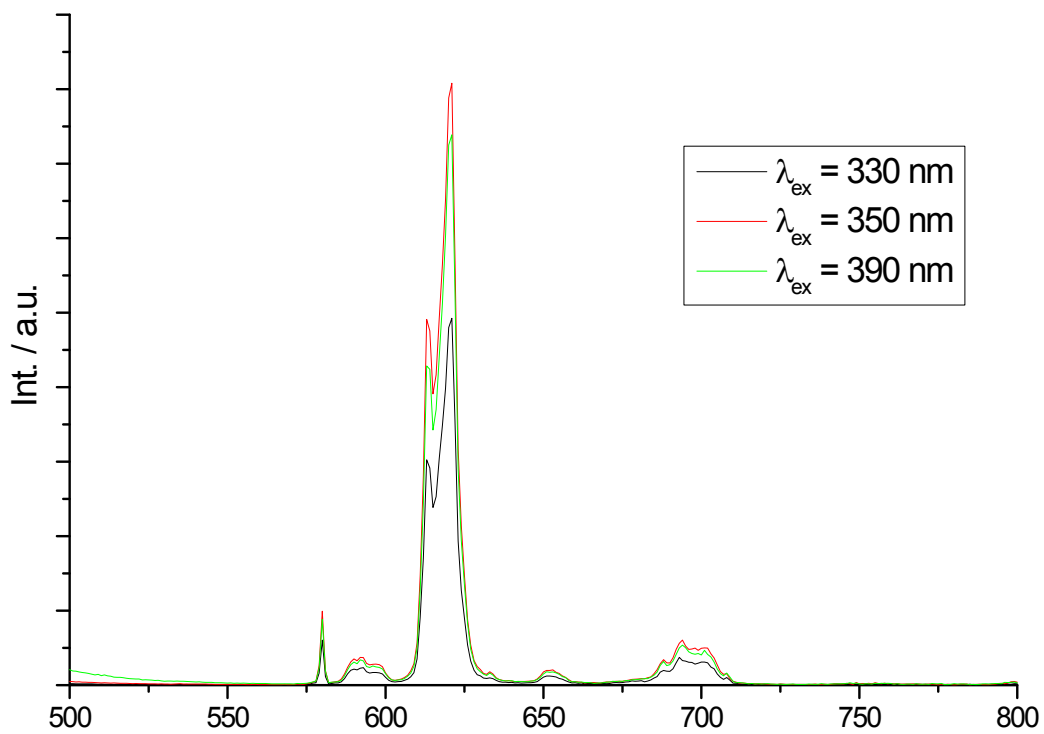


Figure S16 Emission spectra of **Eu-1** in chloroform

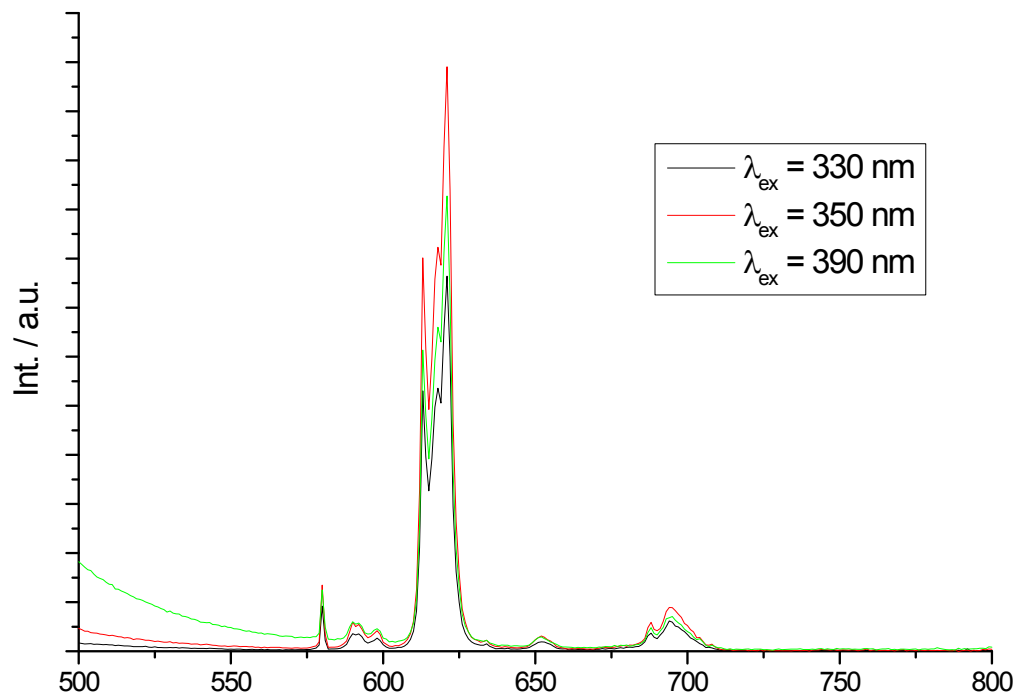


Figure S17 Emission spectra of **Eu-1** in 1,2-dichloroethane

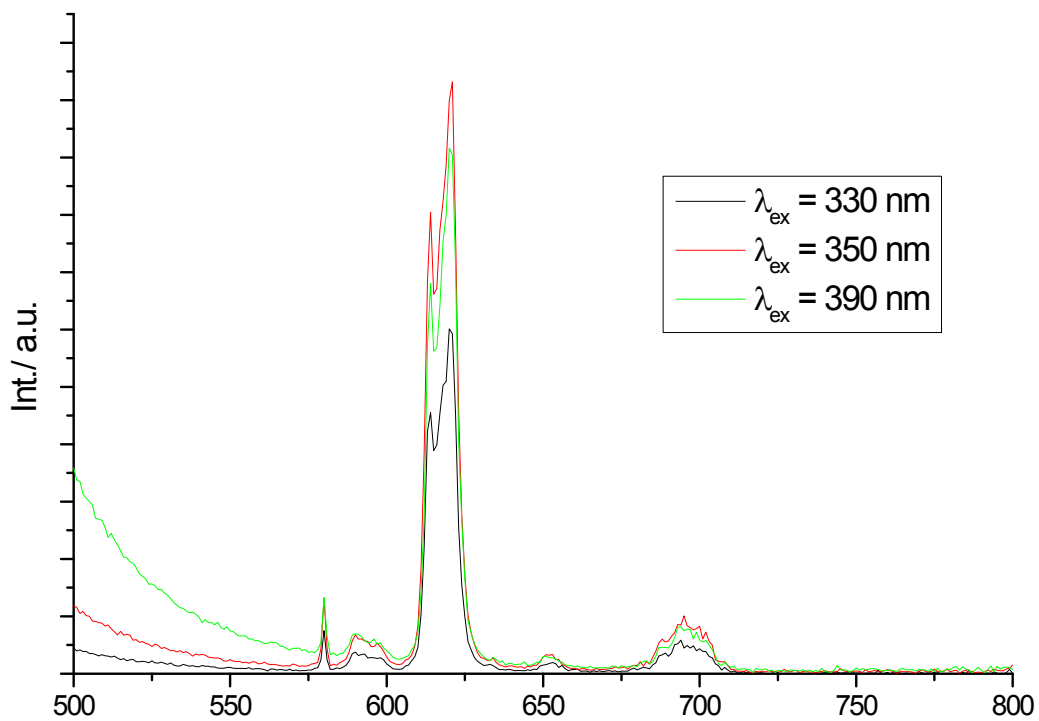


Figure S18 Emission spectra of **Eu-1** in dichloromethane

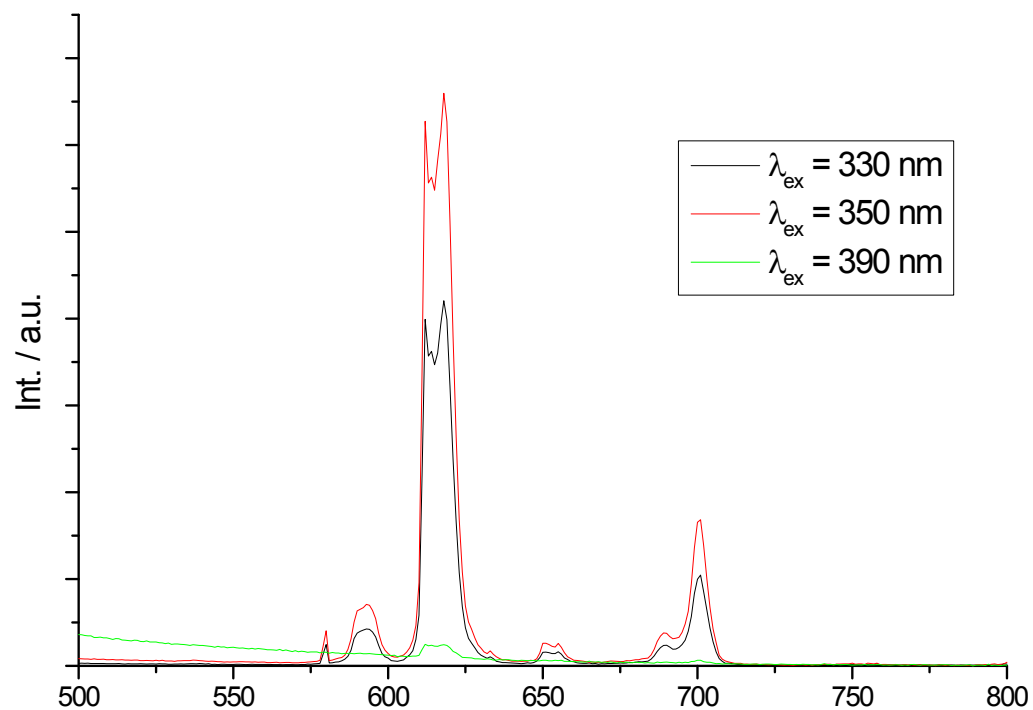


Figure S19 Emission spectra of **Eu-1** in DMSO

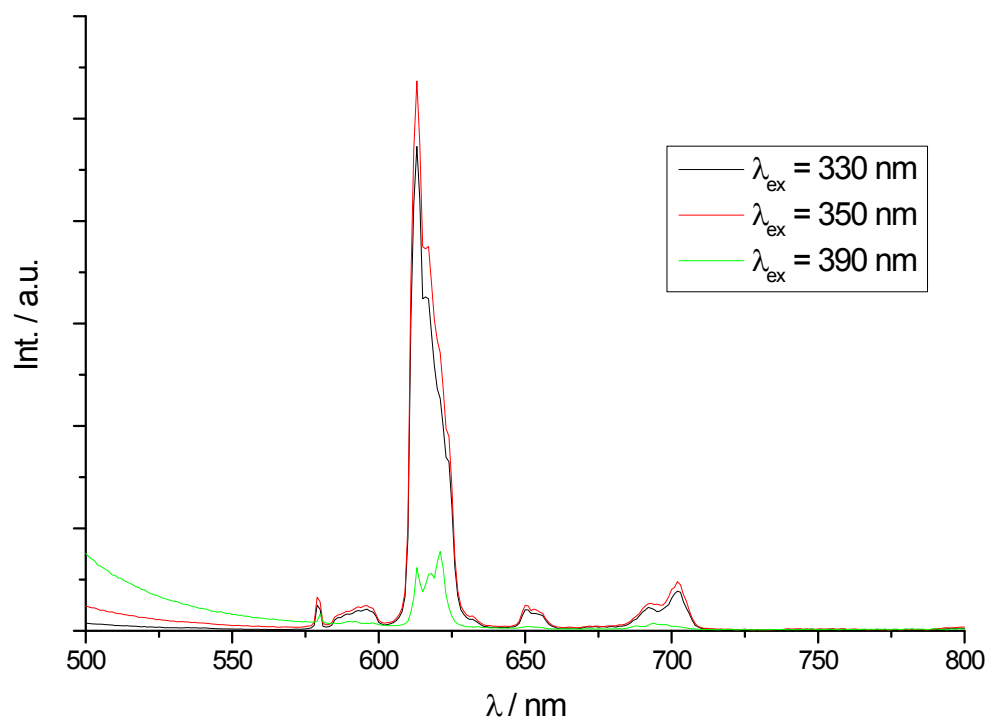


Figure S20 Emission spectra of **Eu-1** in ethyl acetate

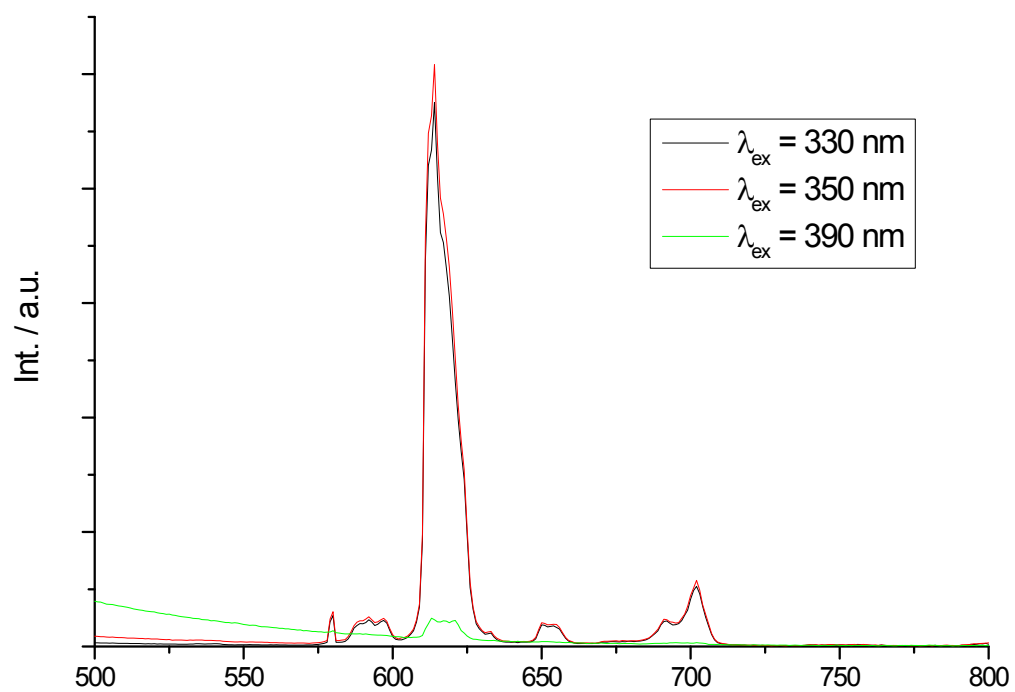


Figure S21 Emission spectra of **Eu-1** in isopropanol

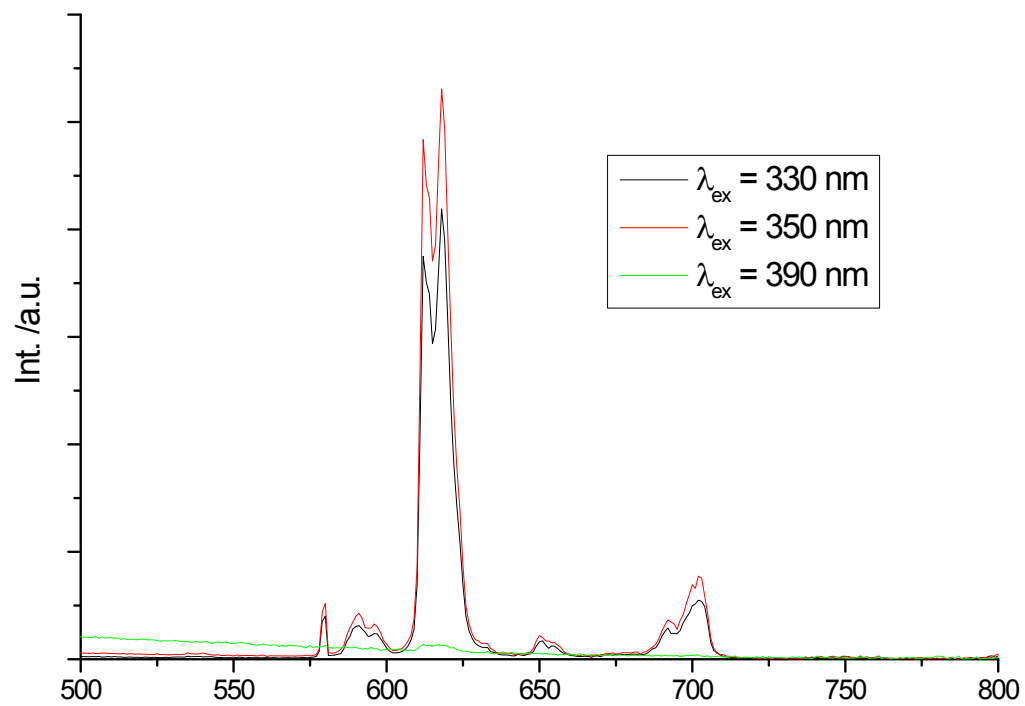


Figure S22 Emission spectra of **Eu-1** in methanol

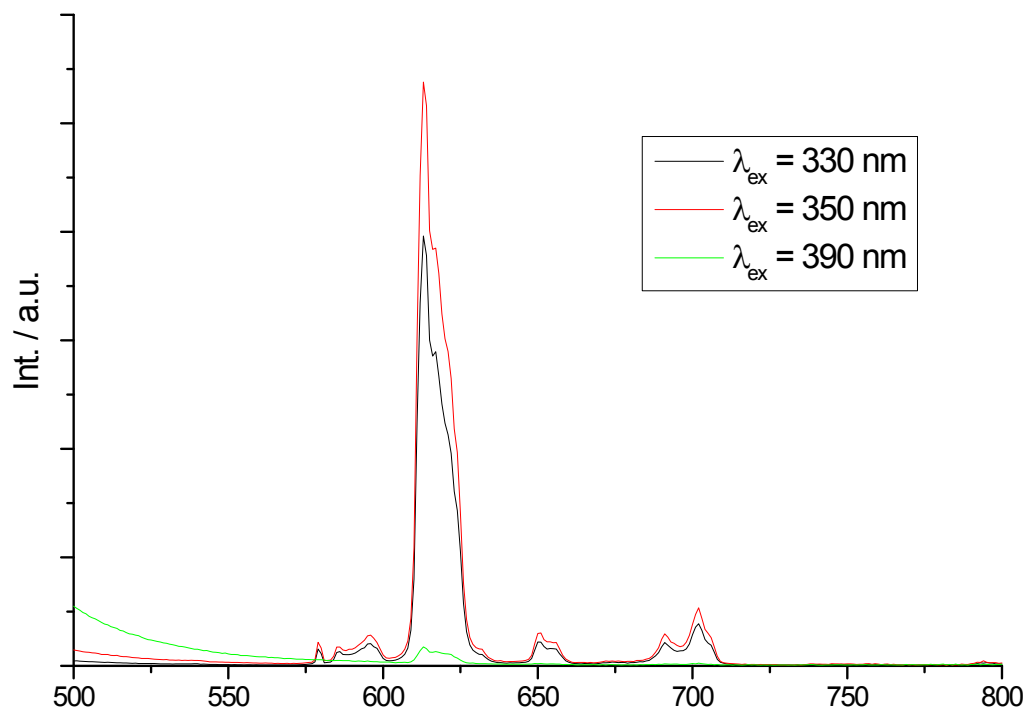


Figure S23 Emission spectra of **Eu-1** in tetrahydrofuran

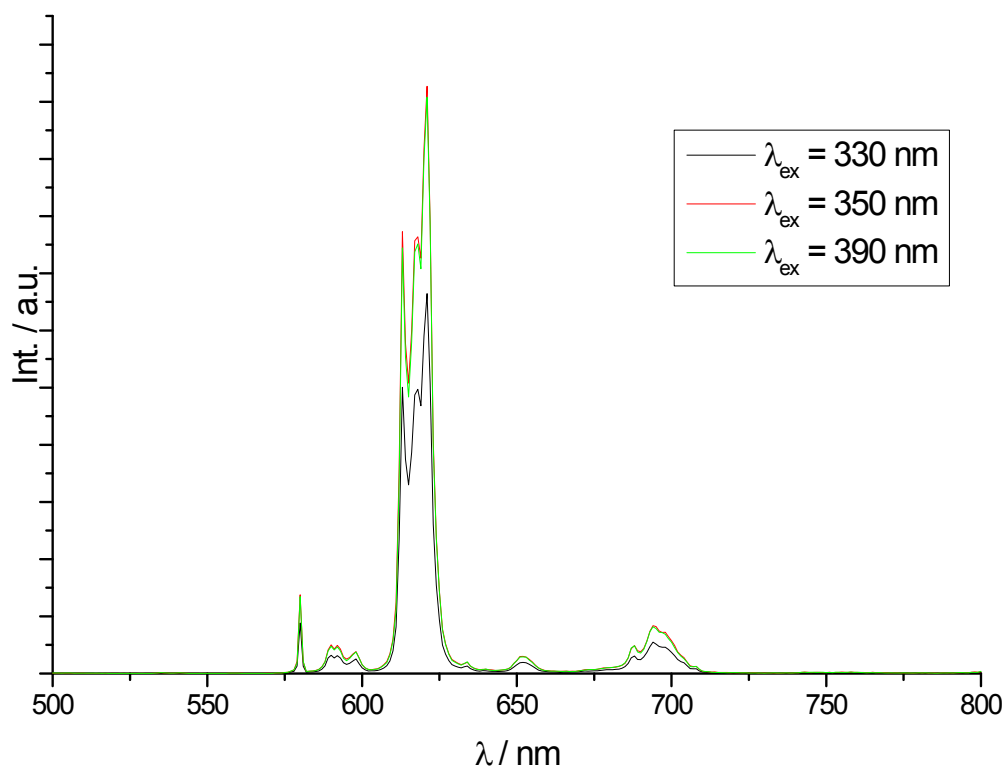


Figure S24 Emission spectra of **Eu-1** in toluene

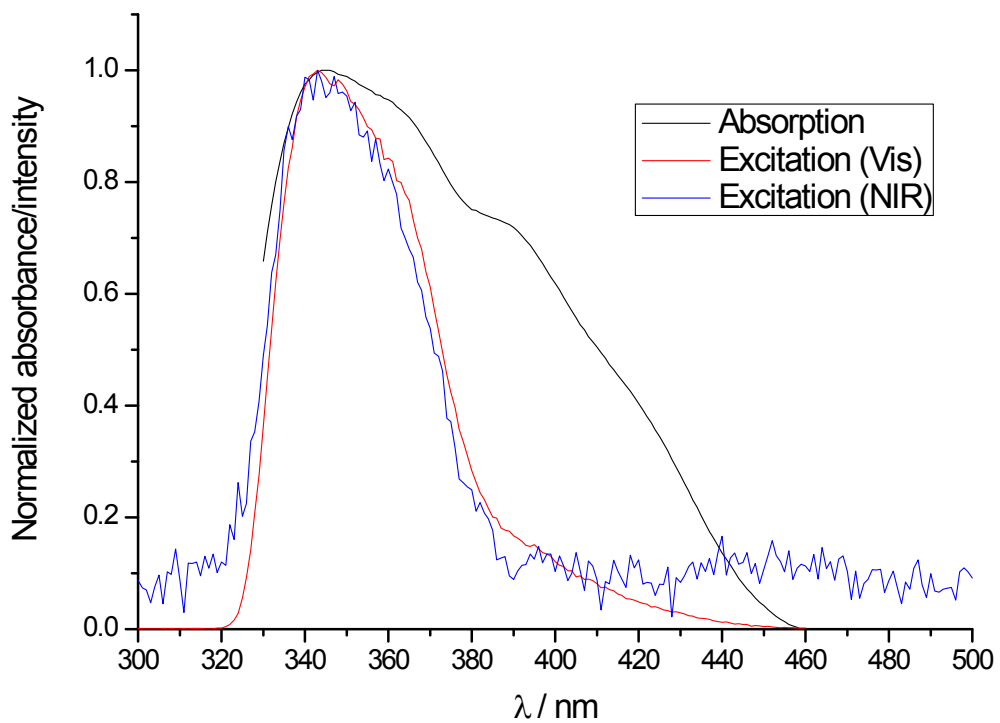


Figure S25 Normalized absorption and excitation spectra of **Sm-1** in acetone

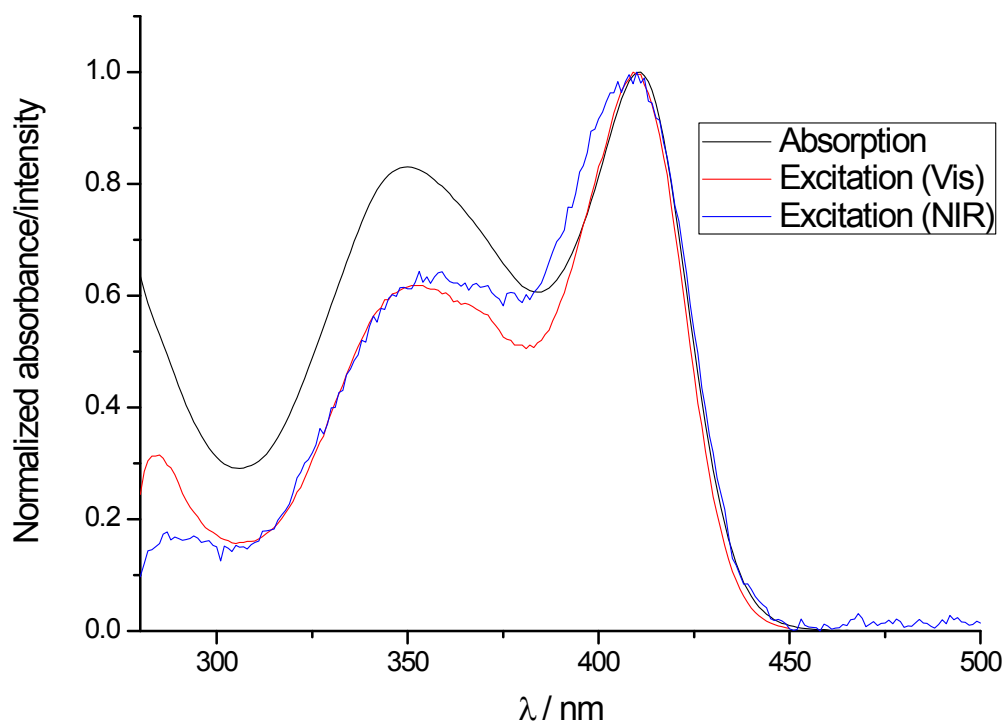


Figure S26 Normalized absorption and excitation spectra of **Sm-1** in benzene



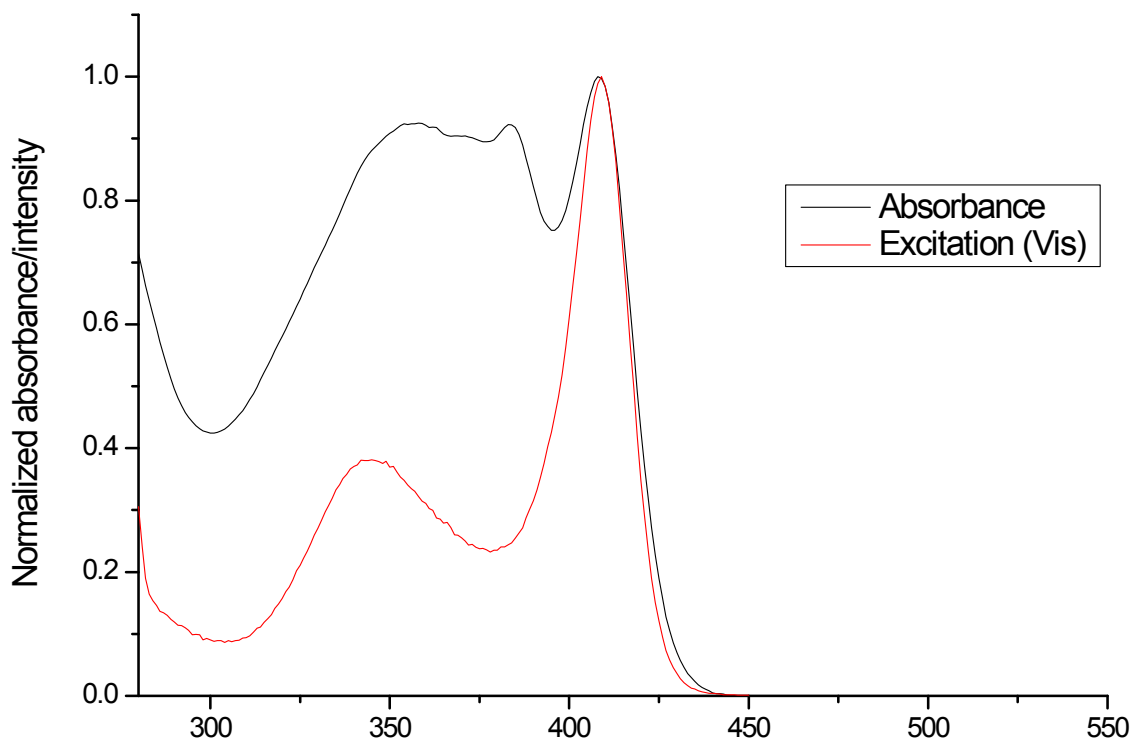


Figure S27 Normalized absorption and excitation spectra of **Sm-1** in CCl<sub>4</sub>

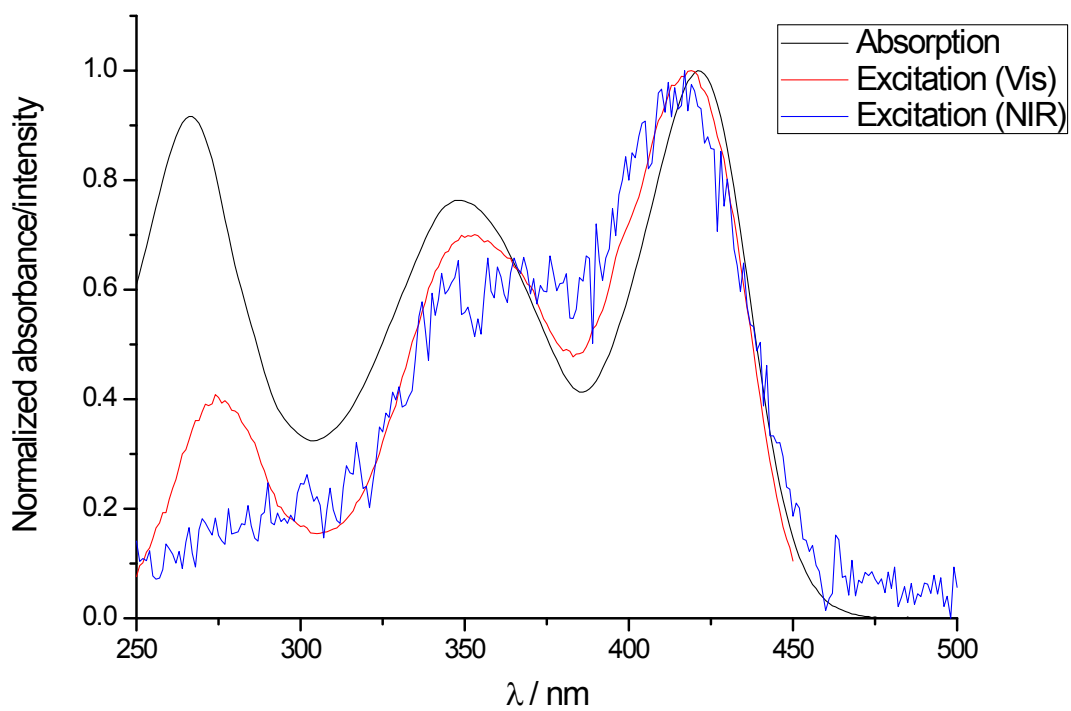


Figure S28 Normalized absorption and excitation spectra of **Sm-1** in chloroform

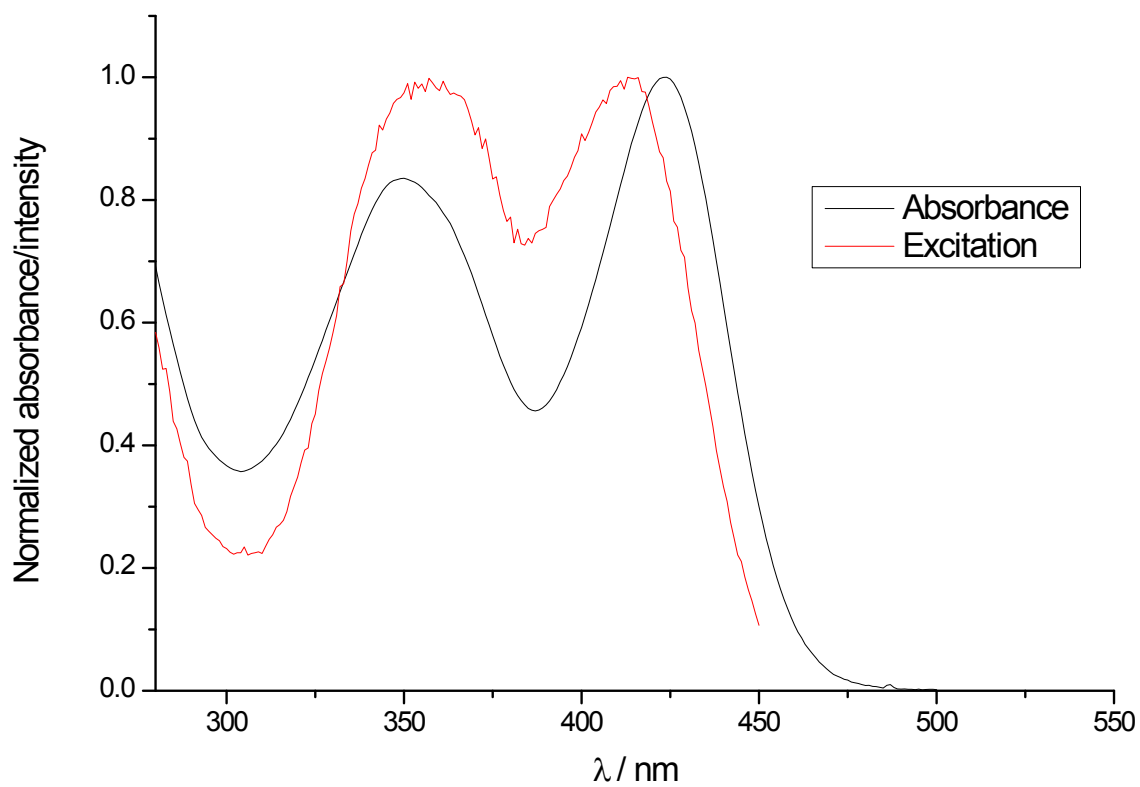


Figure S29 Normalized absorption and excitation spectra of **Sm-1** in 1,2-dichloroethane

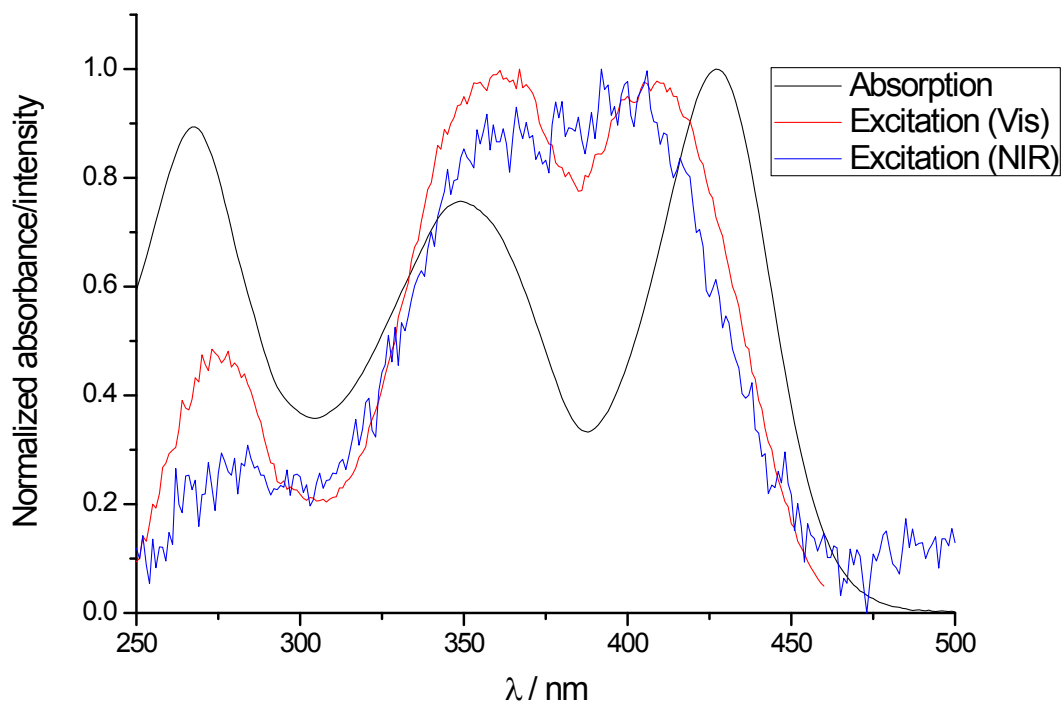


Figure S30 Normalized absorption and excitation spectra of **Sm-1** in dichloromethane

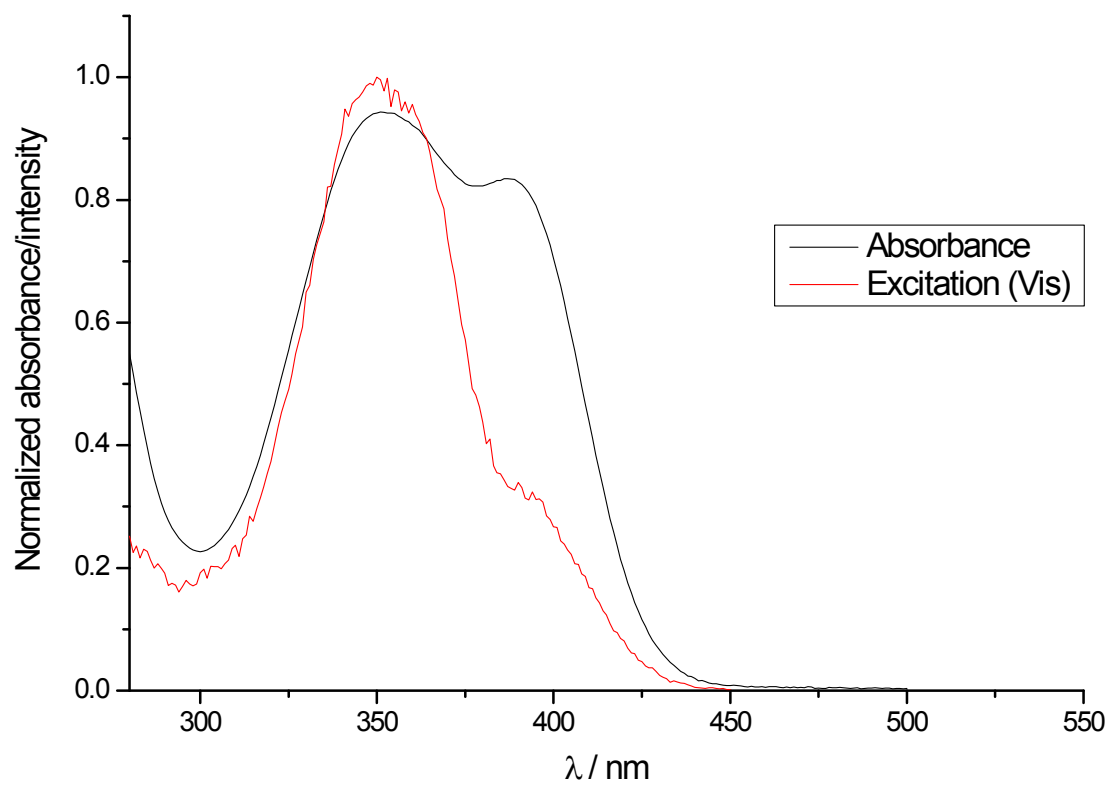


Figure S31 Normalized absorption and excitation spectra of **Sm-1** in DMSO

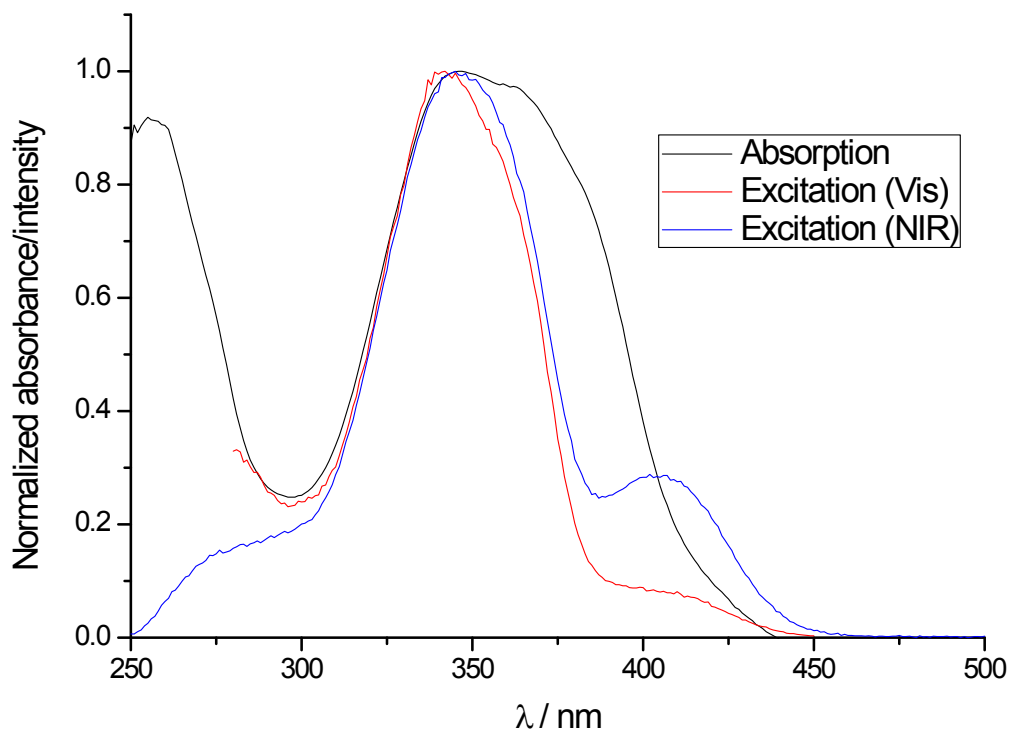


Figure S32 Normalized absorption and excitation spectra of **Sm-1** in ethyl acetate

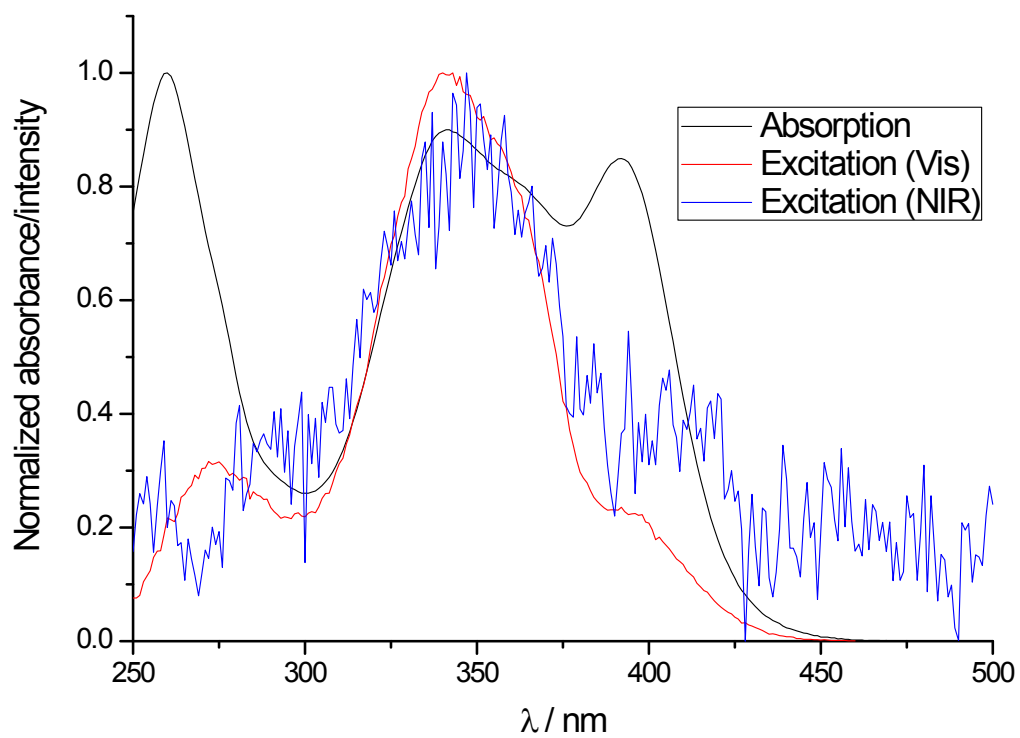


Figure S33 Normalized absorption and excitation spectra of **Sm-1** in isopropanol

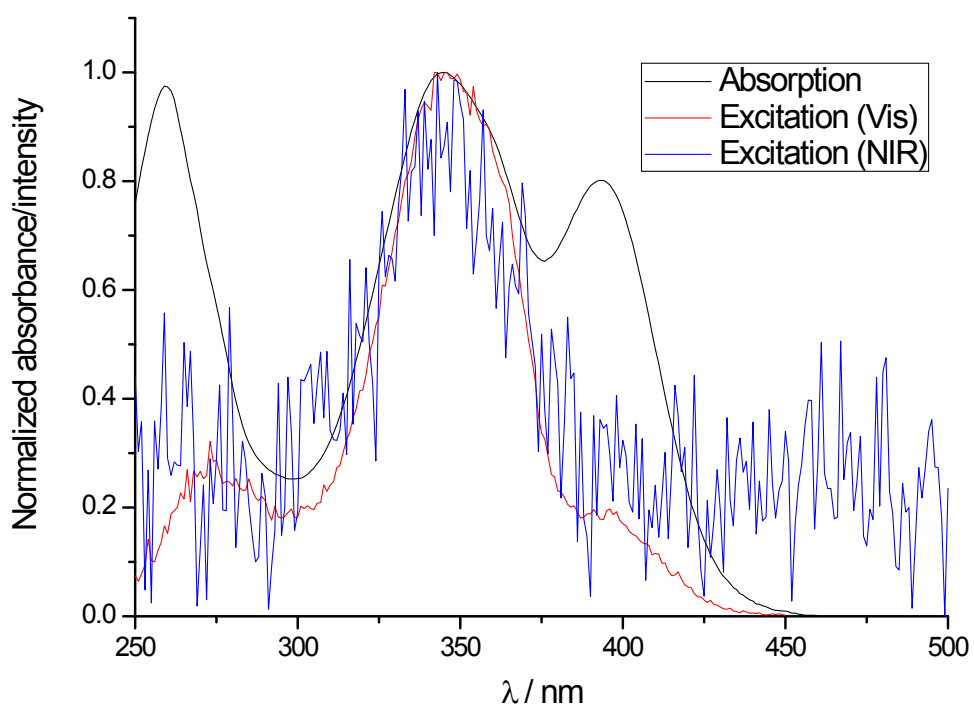


Figure S34 Normalized absorption and excitation spectra of **Sm-1** in methanol

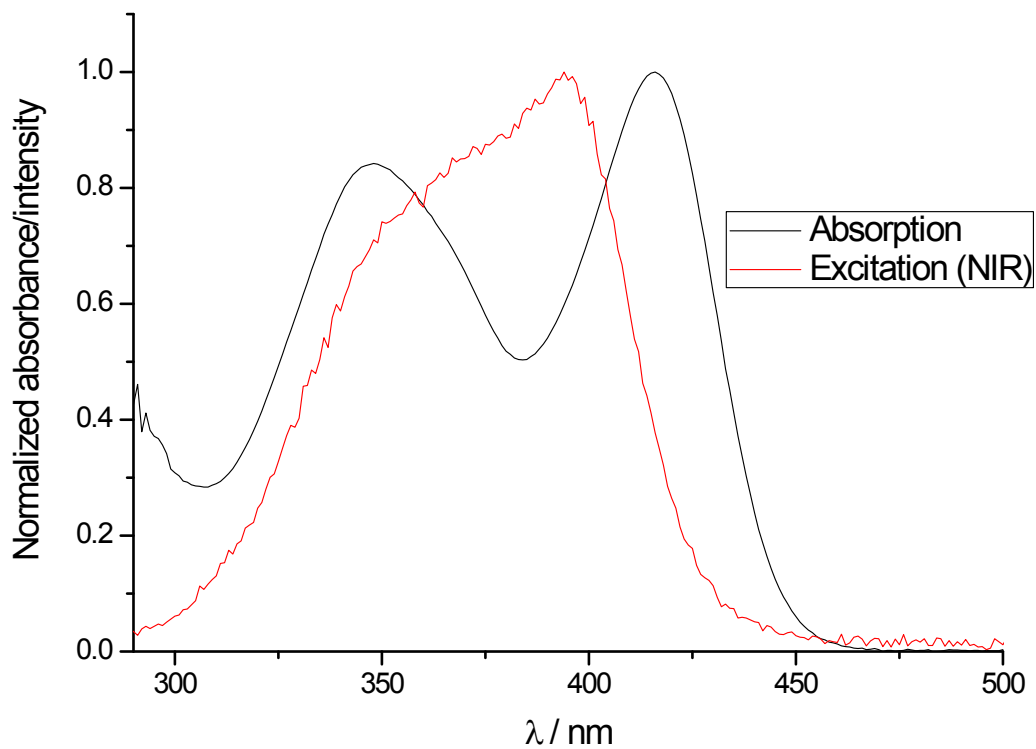


Figure S35 Normalized absorption and excitation spectra of **Sm-1** in fluorobenzene

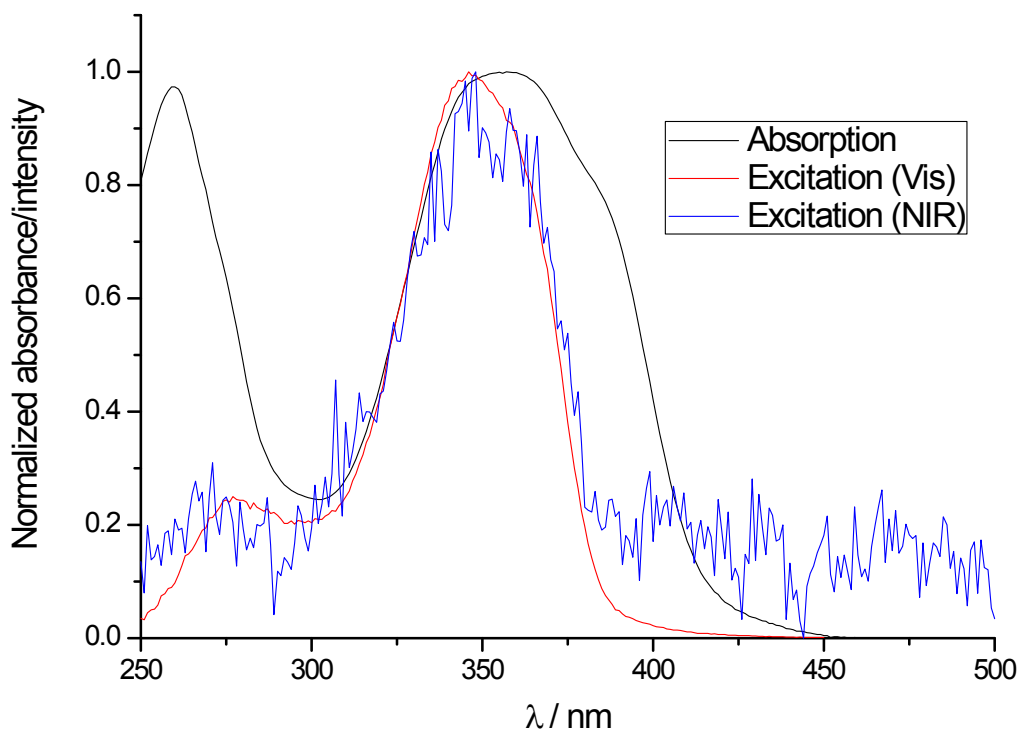


Figure S36 Normalized absorption and excitation spectra of **Sm-1** in tetrahydrofuran

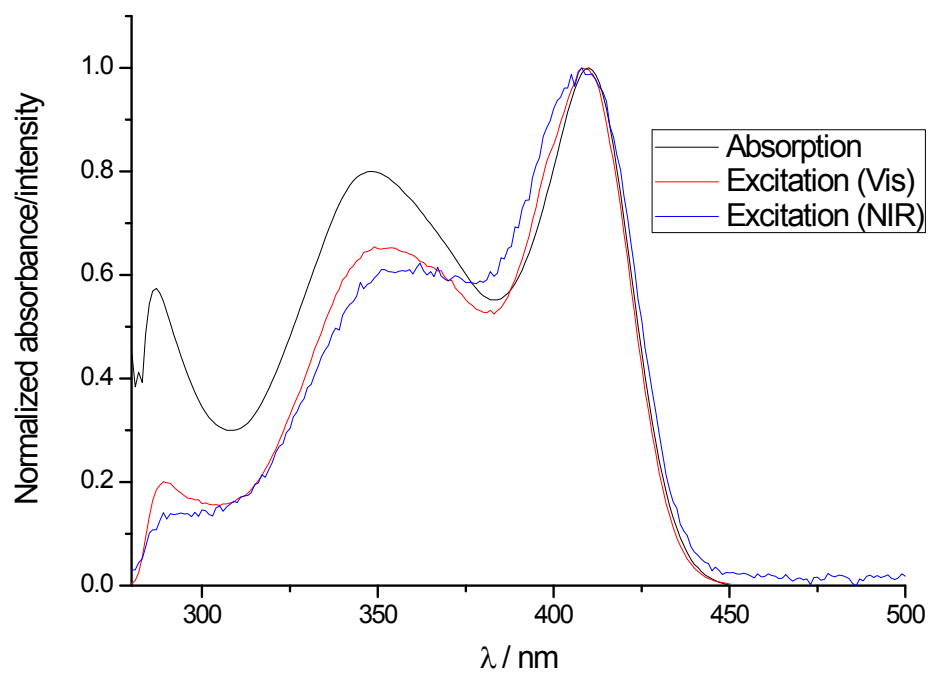


Figure S37 Normalized absorption and excitation spectra of **Sm-1** in toluene

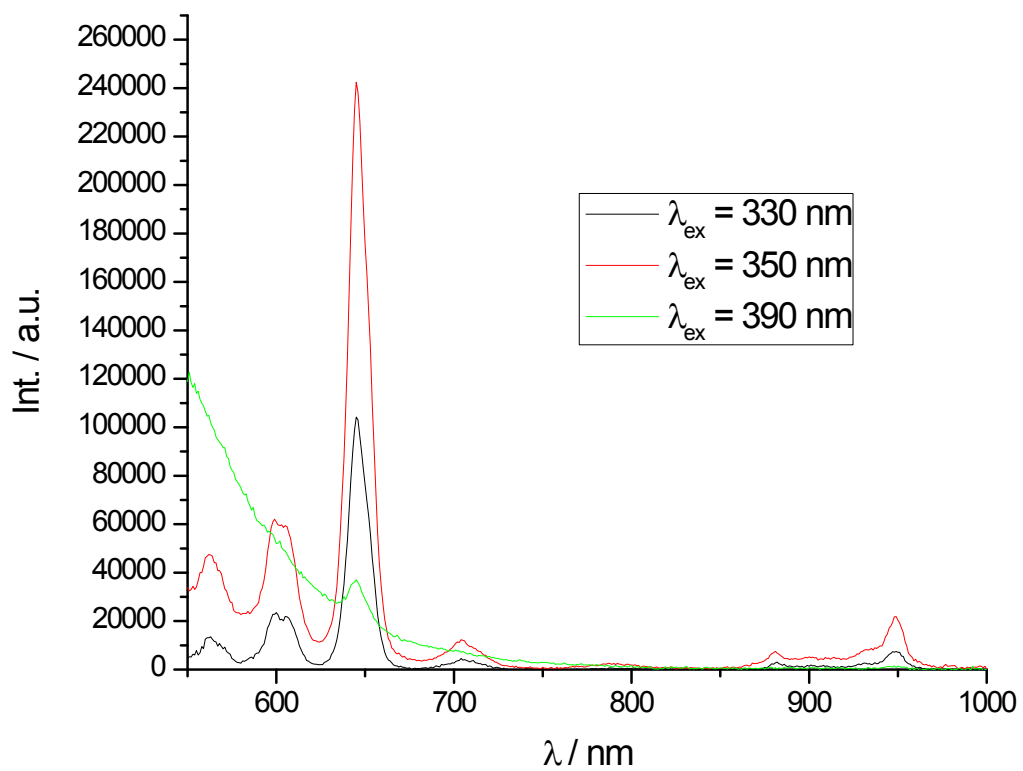


Figure S38 Emission spectra of **Sm-1** in acetone

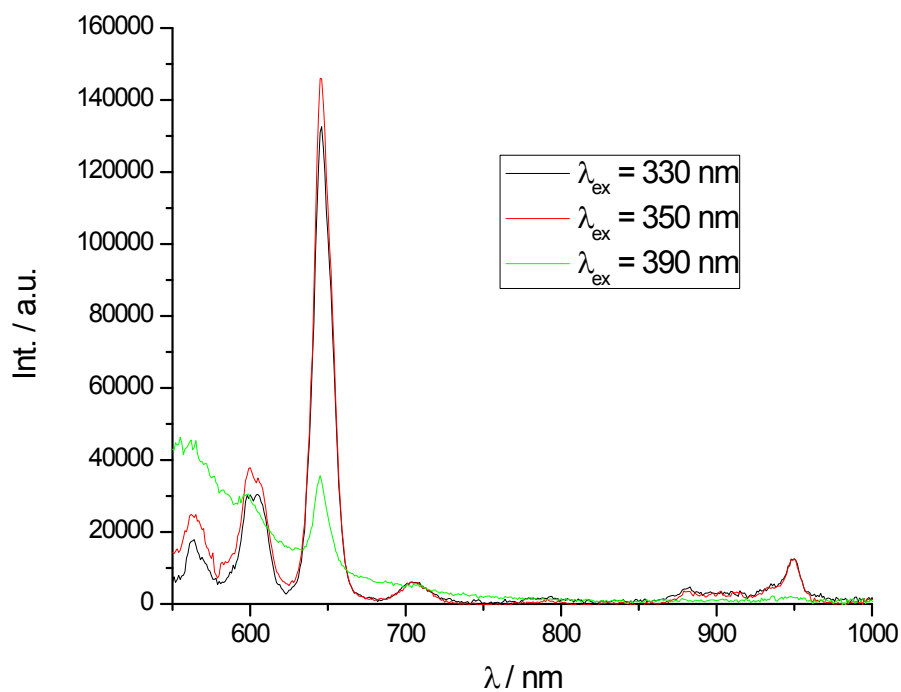


Figure S39 Emission spectra of **Sm-1** in acetonitrile

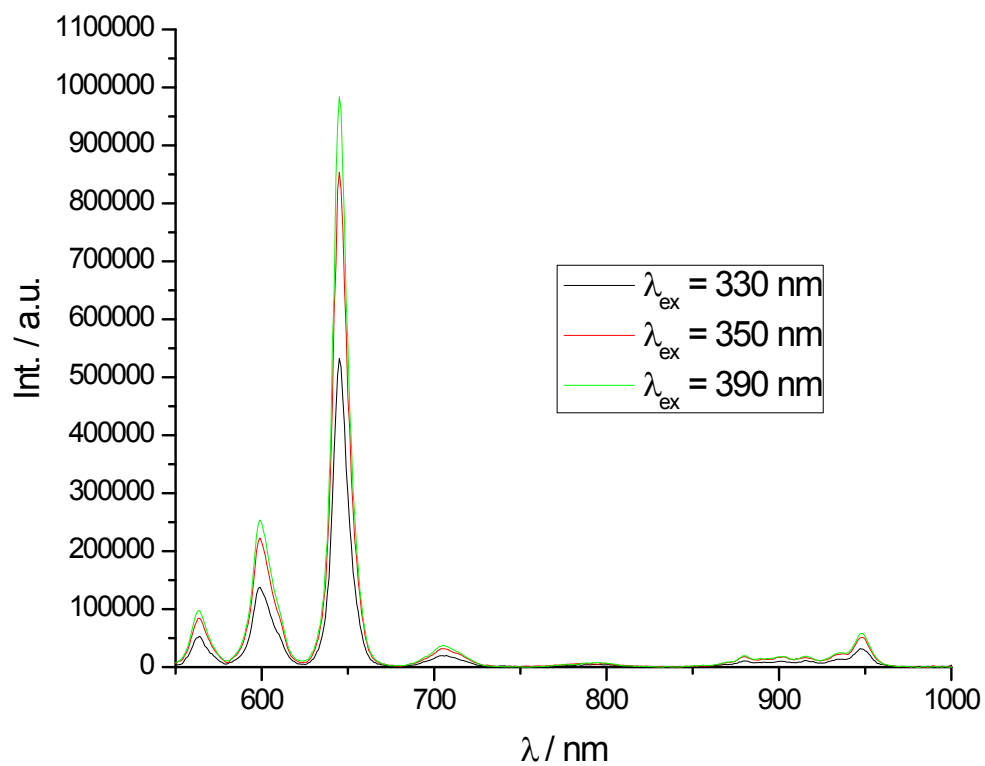


Figure S40 Emission spectra of **Sm-1** in benzene

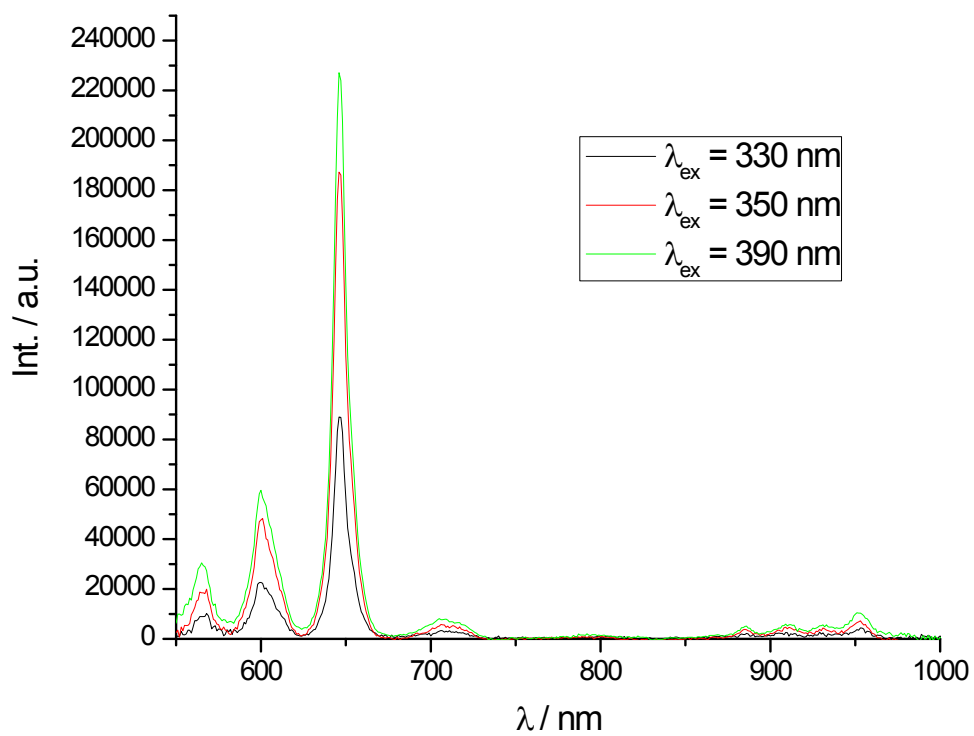


Figure S41 Emission spectra of **Sm-1** in chloroform

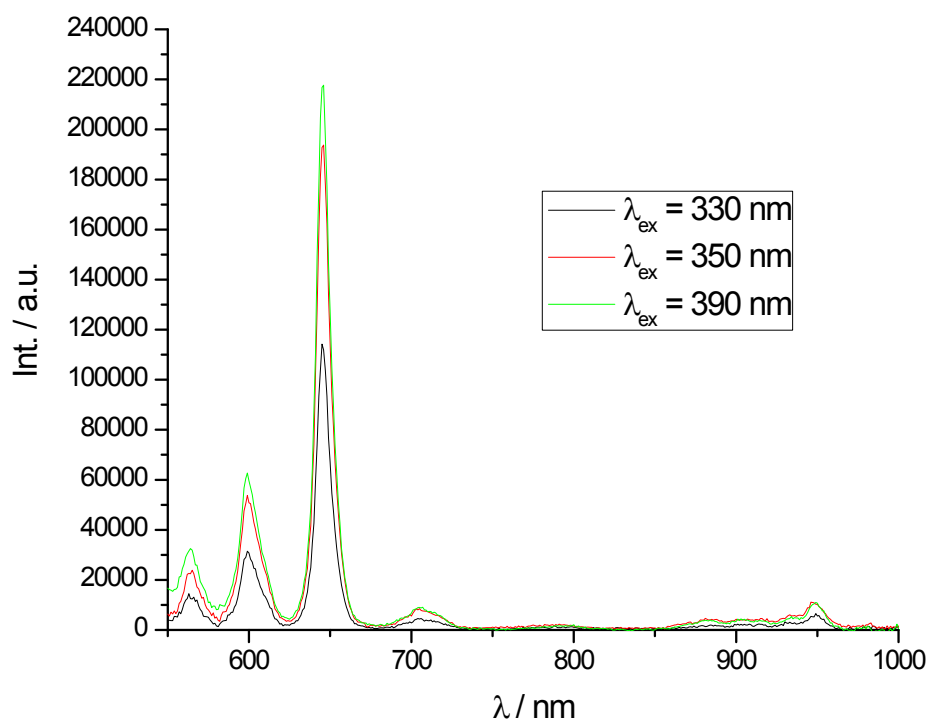


Figure S42 Emission spectra of **Sm-1** in dichloromethane



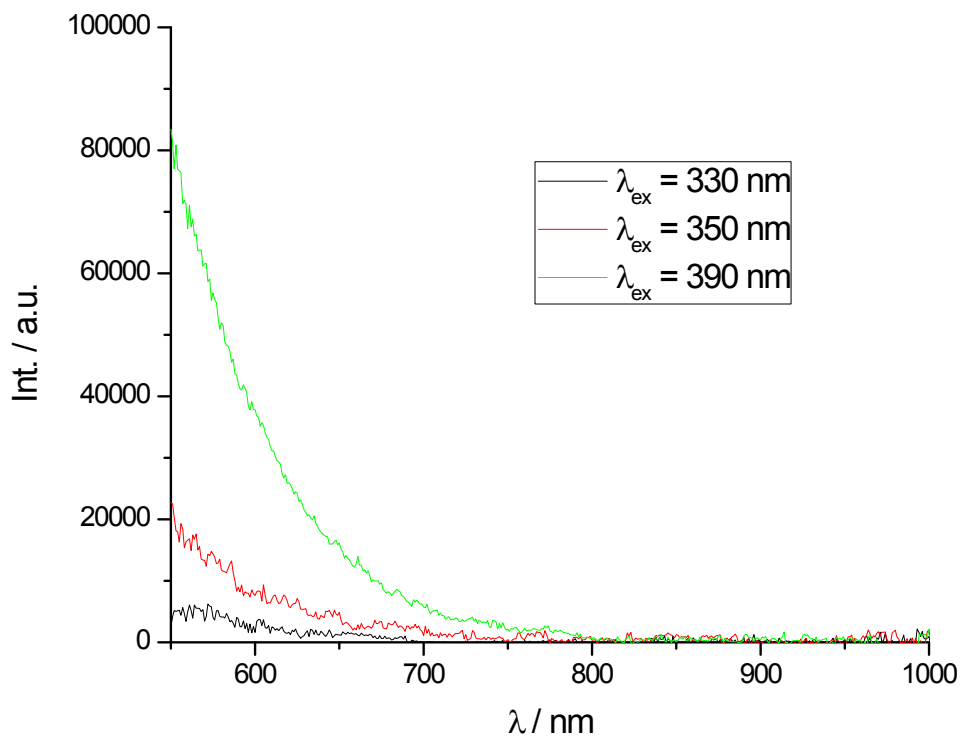


Figure S43 Emission spectra of **Sm-1** in DMF

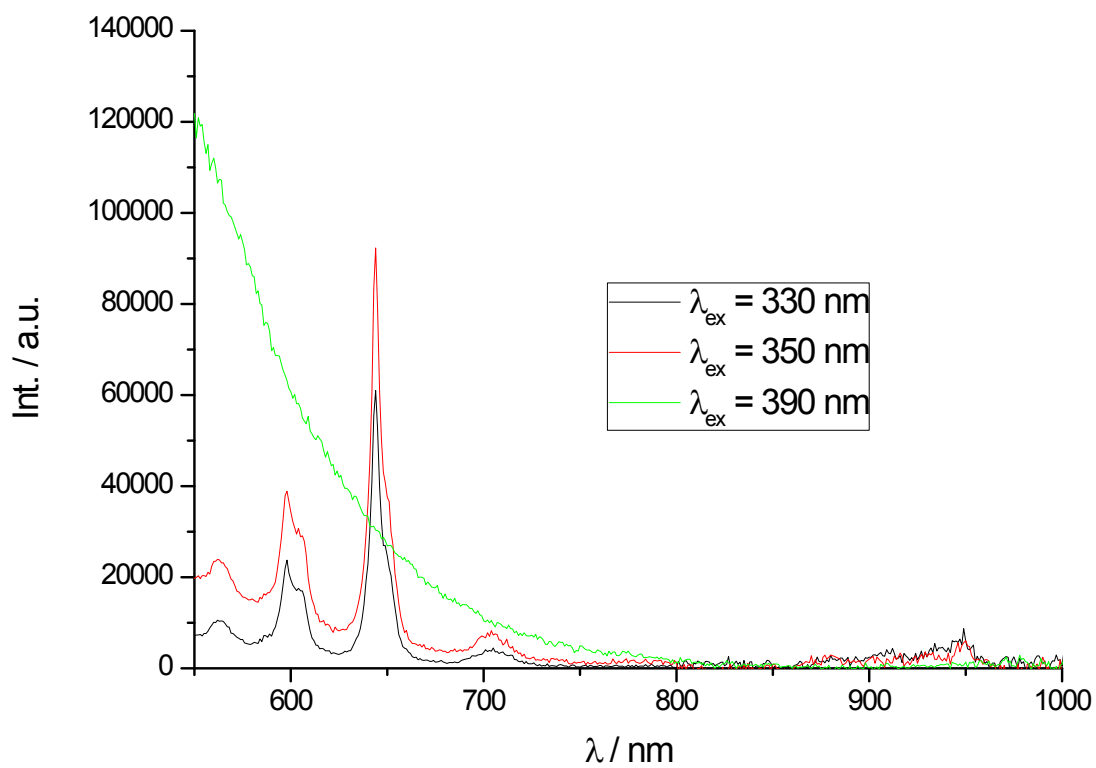


Figure S44 Emission spectra of **Sm-1** in DMSO

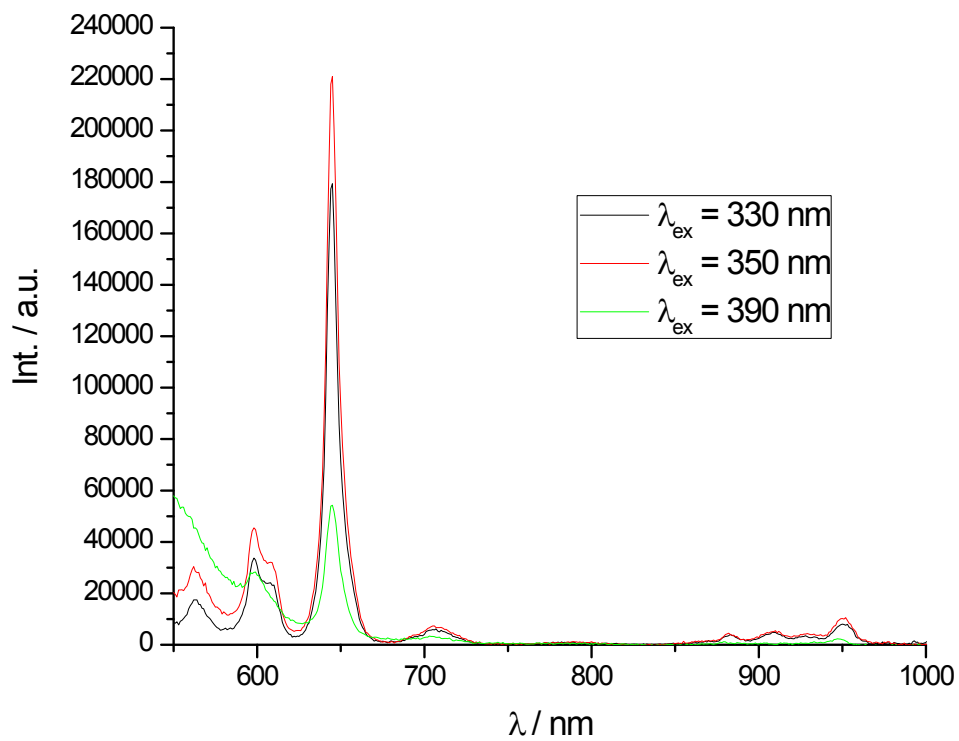


Figure S45 Emission spectra of **Sm-1** in ethyl acetate

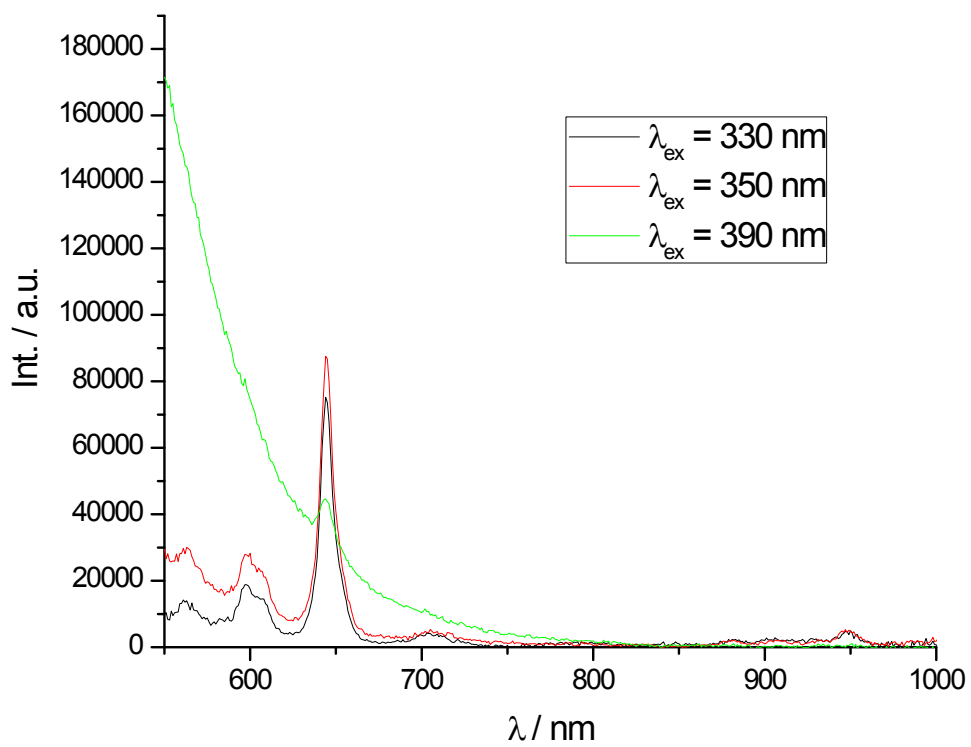


Figure S46 Emission spectra of **Sm-1** in isopropanol

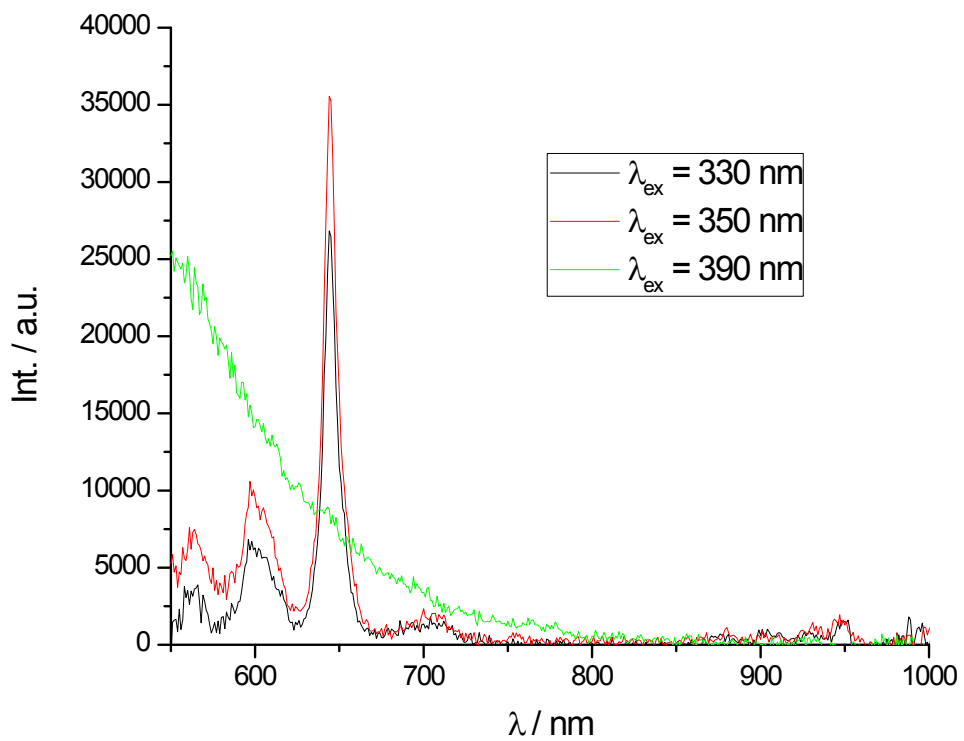


Figure S47 Emission spectra of **Sm-1** in methanol

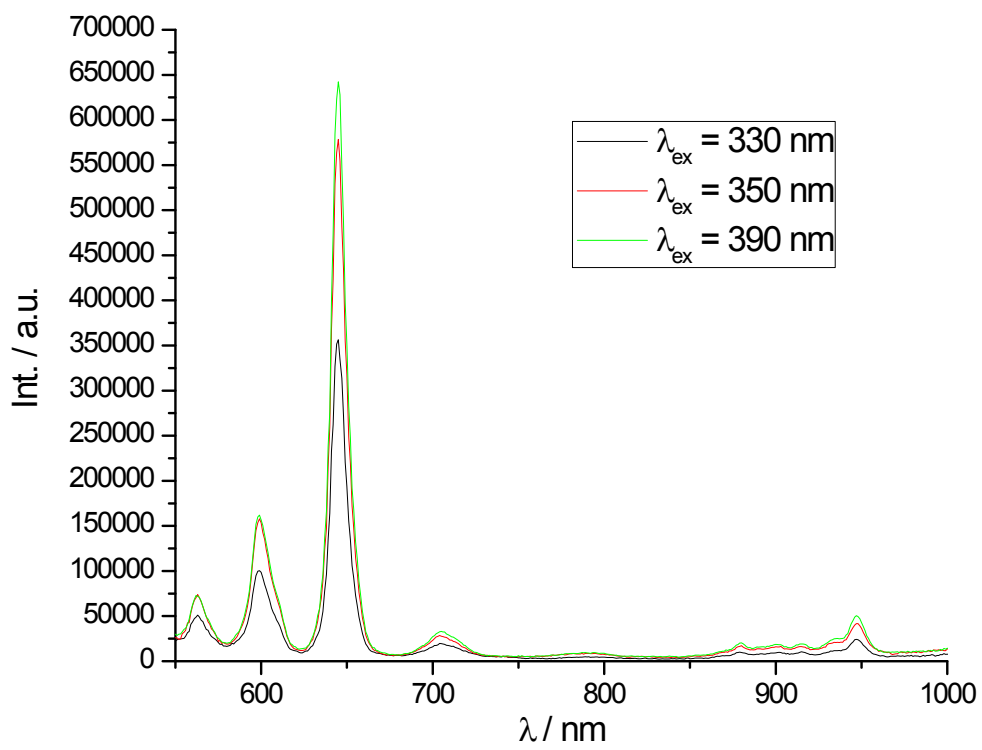


Figure S48 Emission spectra of **Sm-1** in fluorobenzene

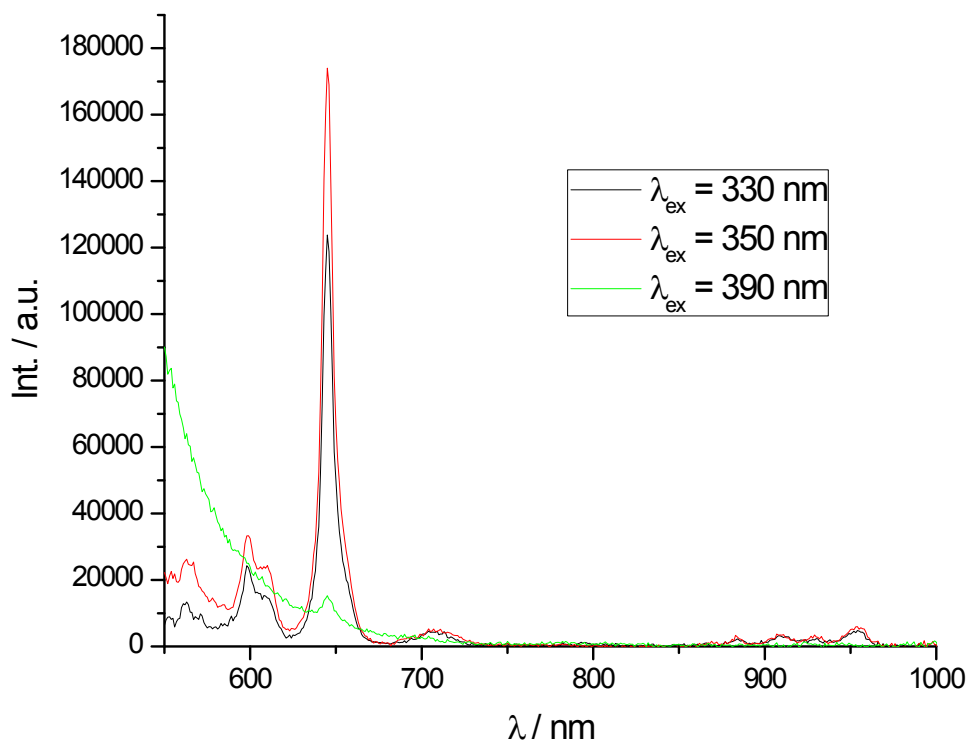


Figure S49 Emission spectra of **Sm-1** in tetrahydrofuran

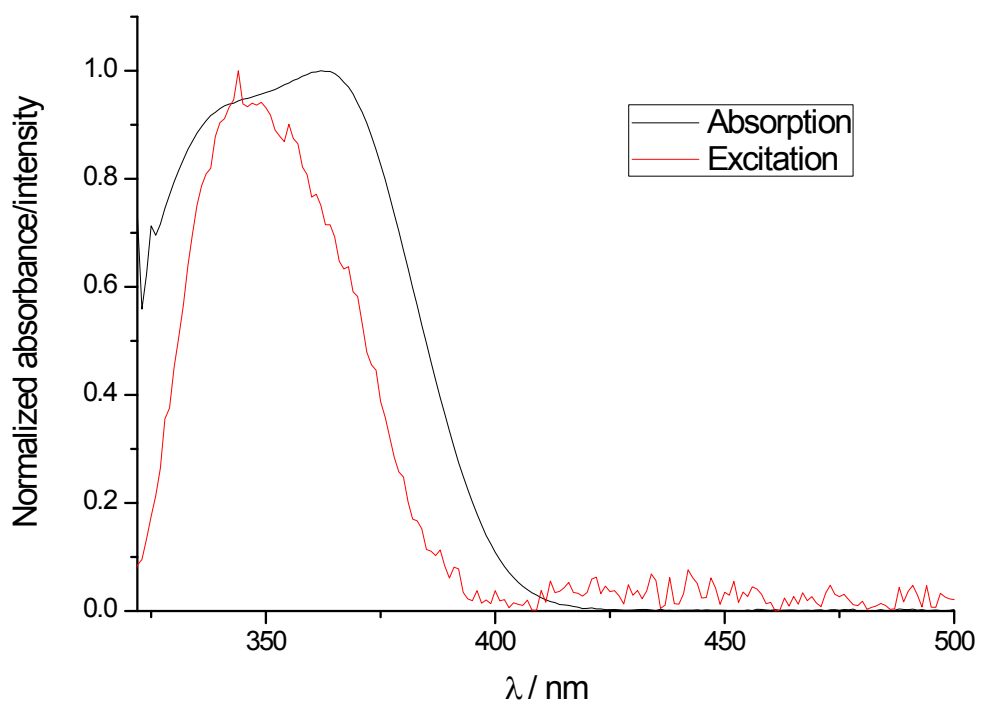


Figure S50 Normalized absorption and excitation spectra of **Yb-1** in acetone

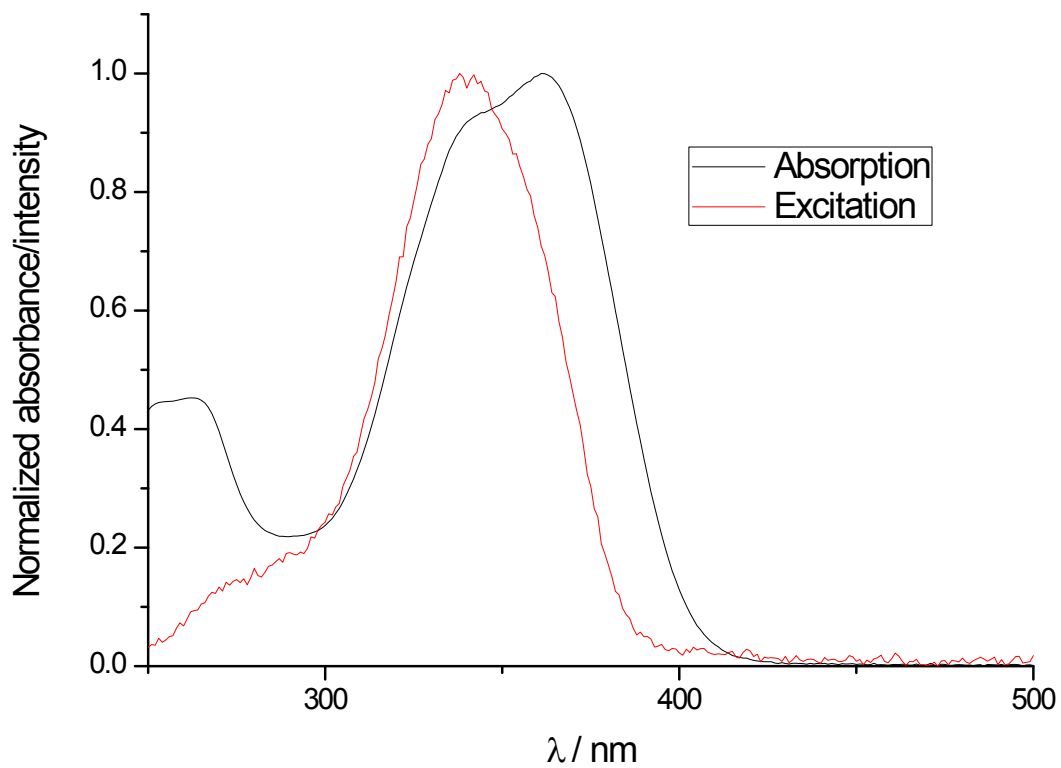


Figure S51 Normalized absorption and excitation spectra of **Yb-1** in acetonitrile

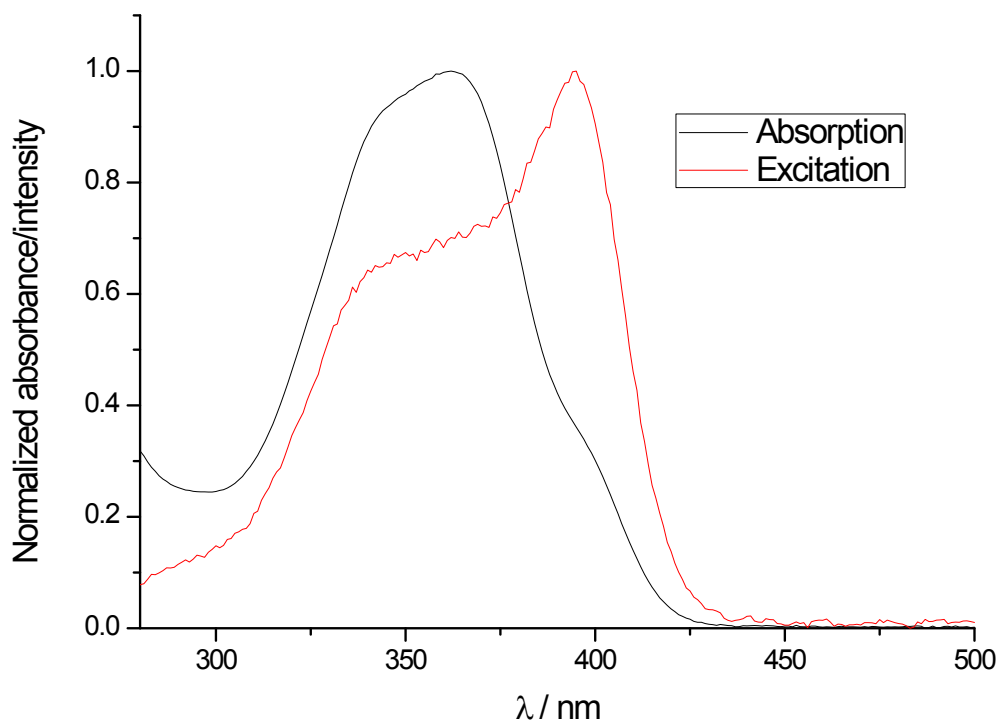


Figure S52 Normalized absorption and excitation spectra of **Yb-1** in benzene

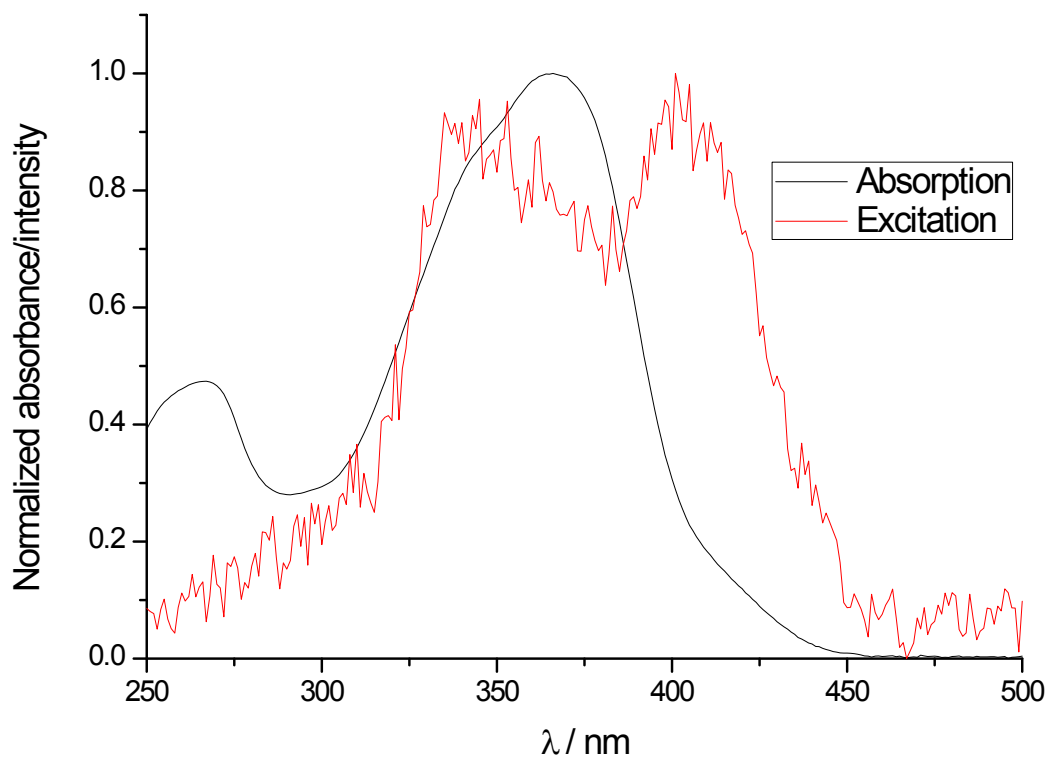


Figure S53 Normalized absorption and excitation spectra of **Yb-1** in chloroform

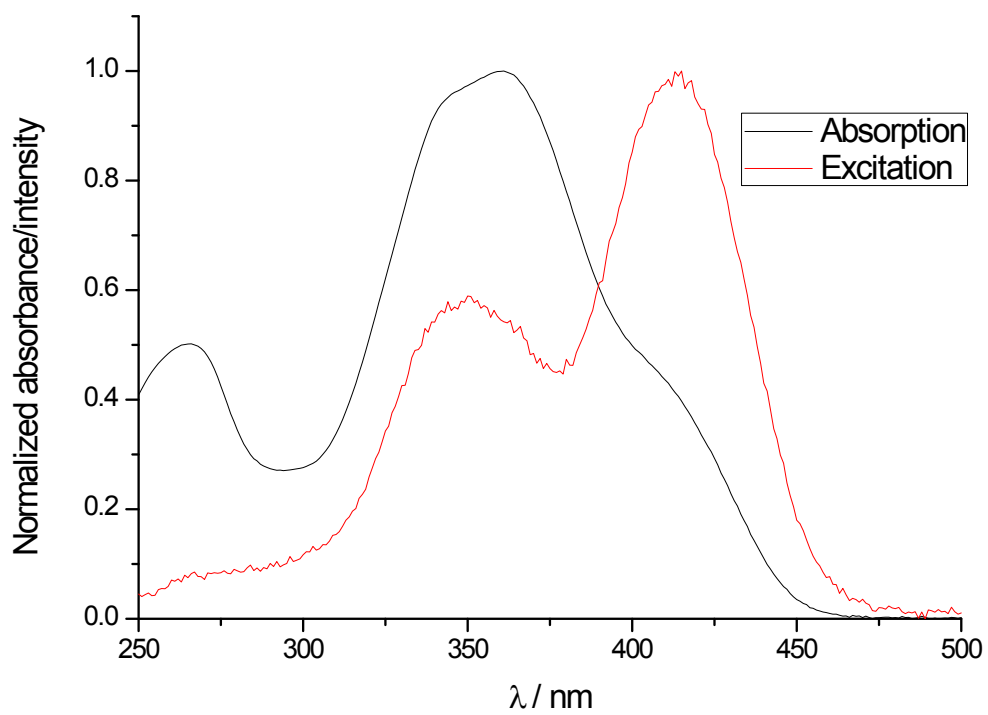


Figure S54 Normalized absorption and excitation spectra of **Yb-1** in dichloromethane

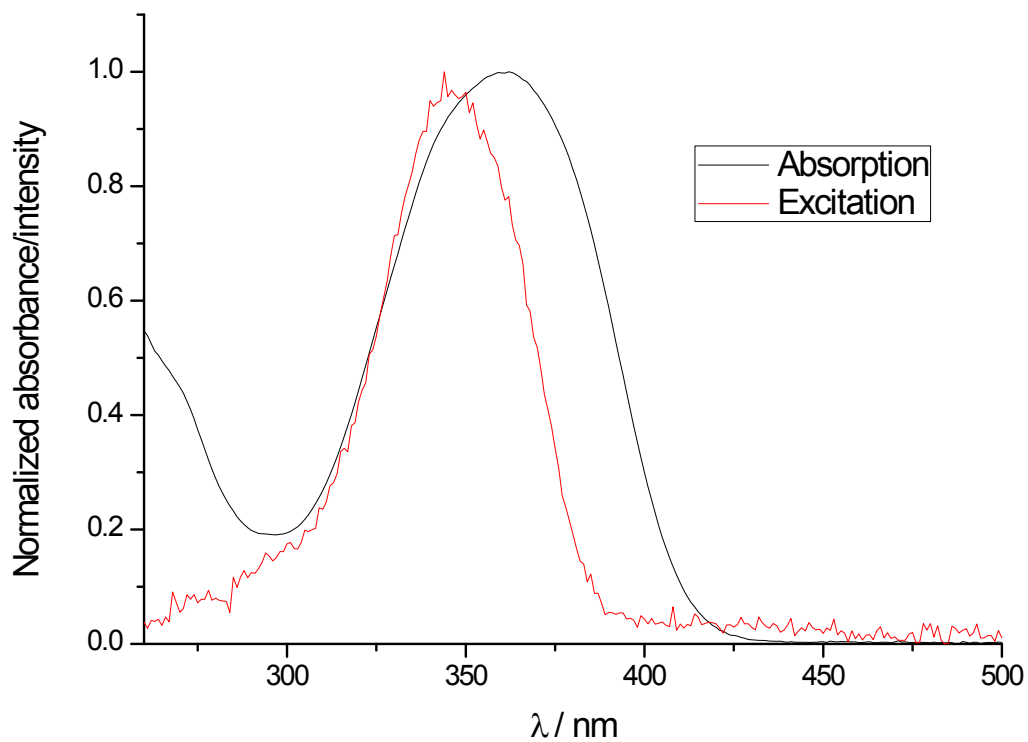


Figure S55 Normalized absorption and excitation spectra of **Yb-1** in DMSO

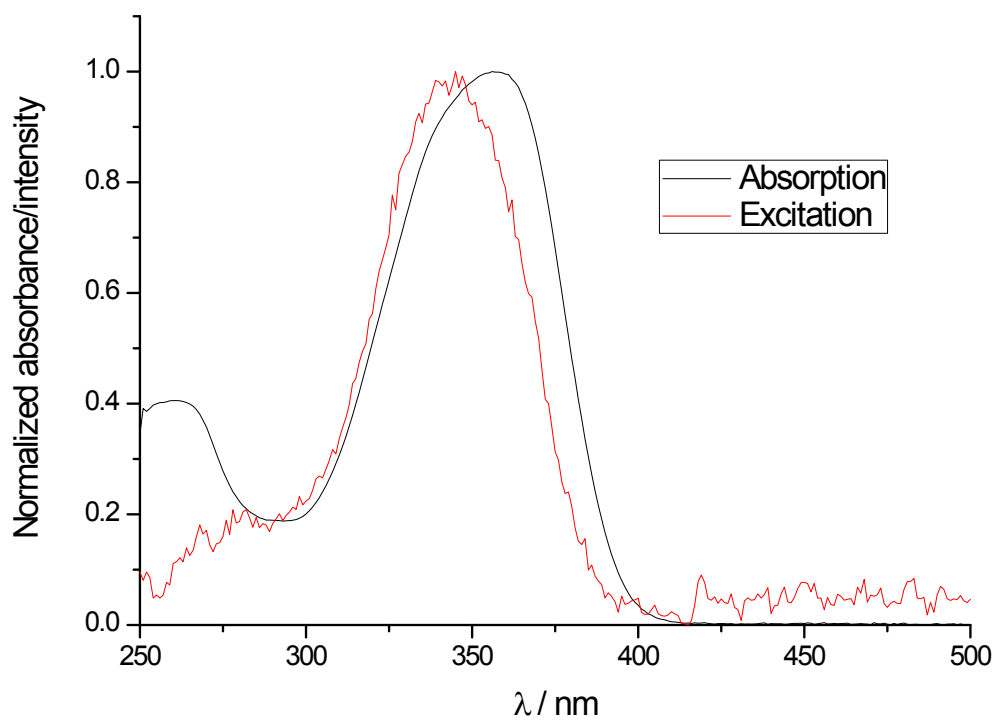


Figure S56 Normalized absorption and excitation spectra of **Yb-1** in ethyl acetate

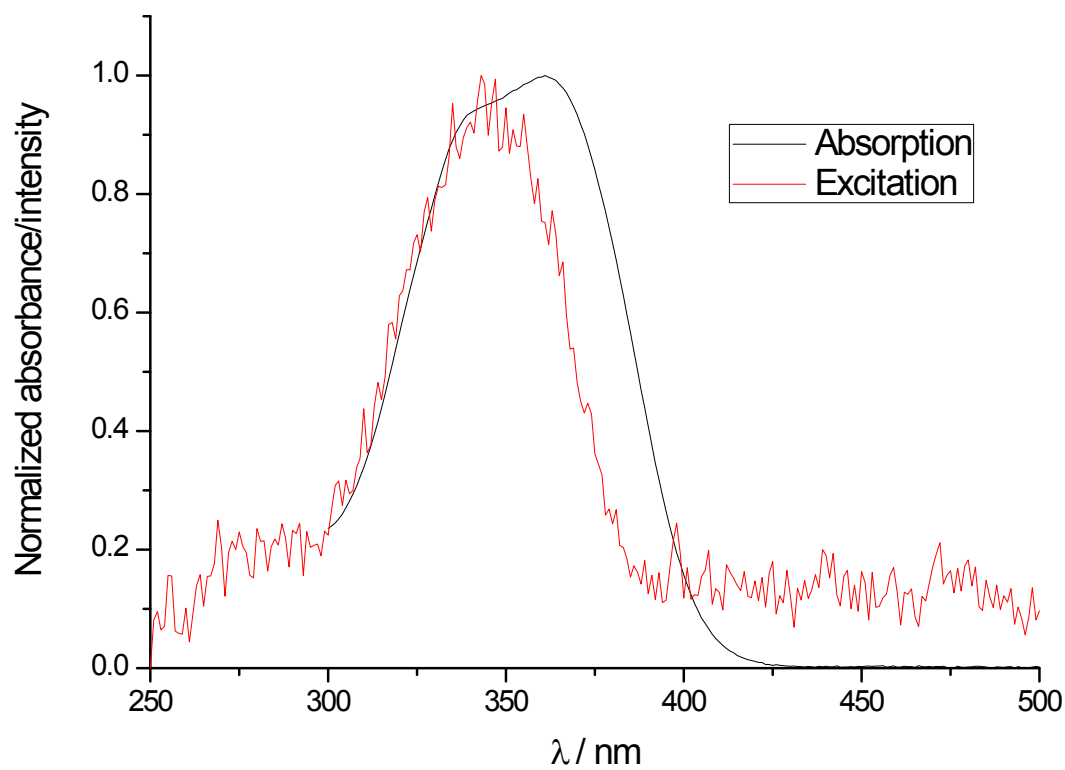


Figure S57 Normalized absorption and excitation spectra of **Yb-1** in isopropanol

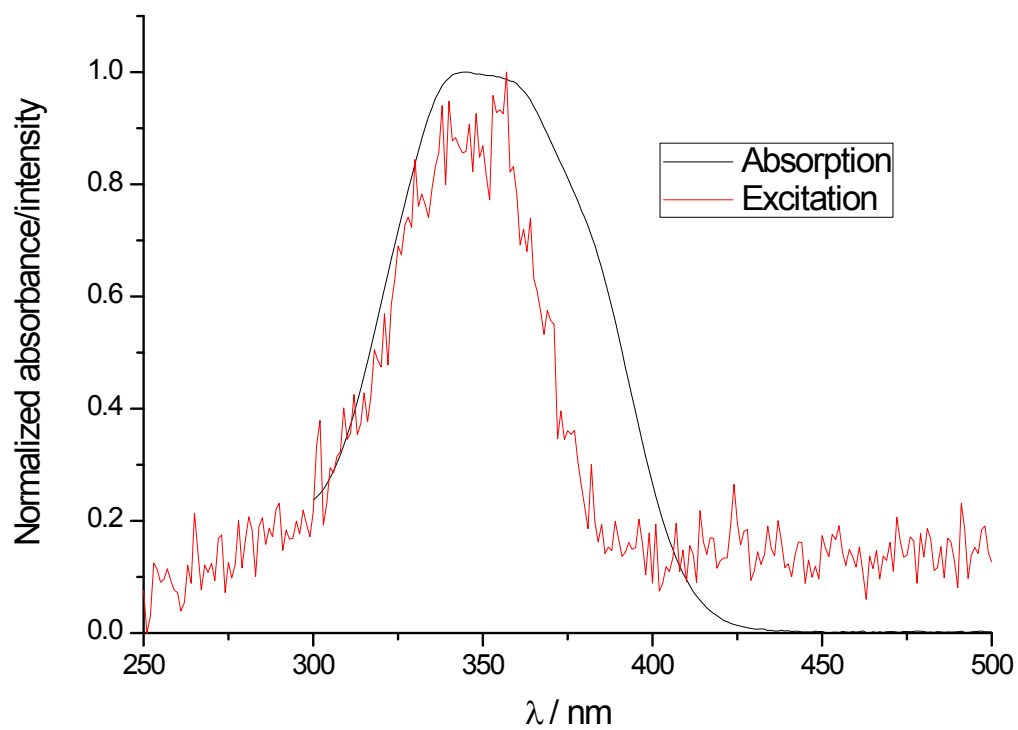


Figure S58 Normalized absorption and excitation spectra of **Yb-1** in methanol



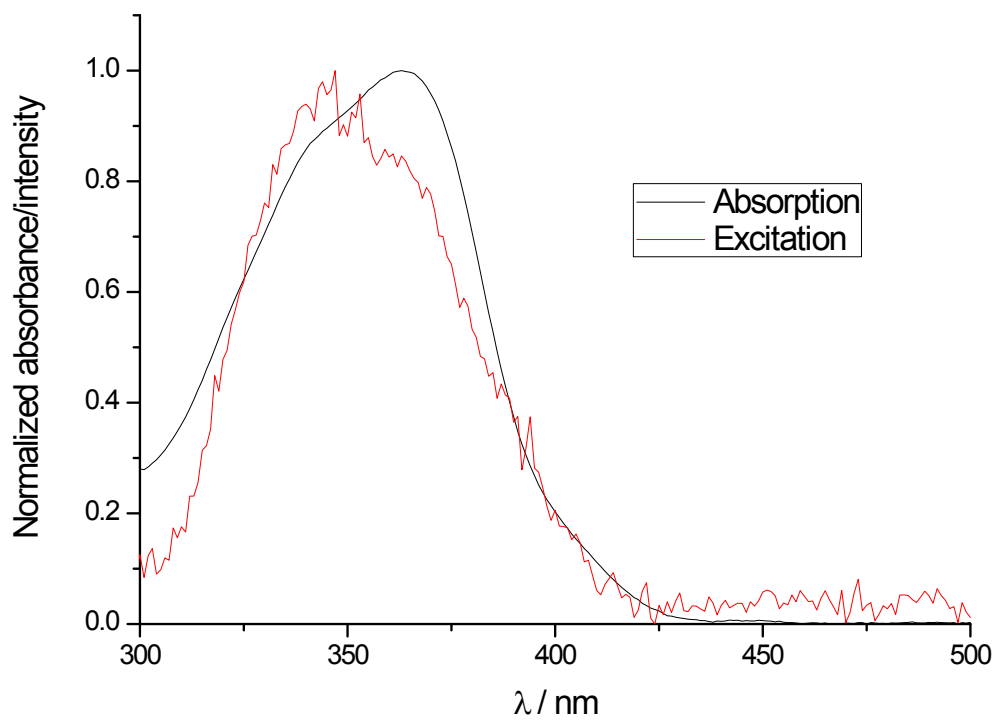


Figure S59 Normalized absorption and excitation spectra of **Yb-1** in fluorobenzene

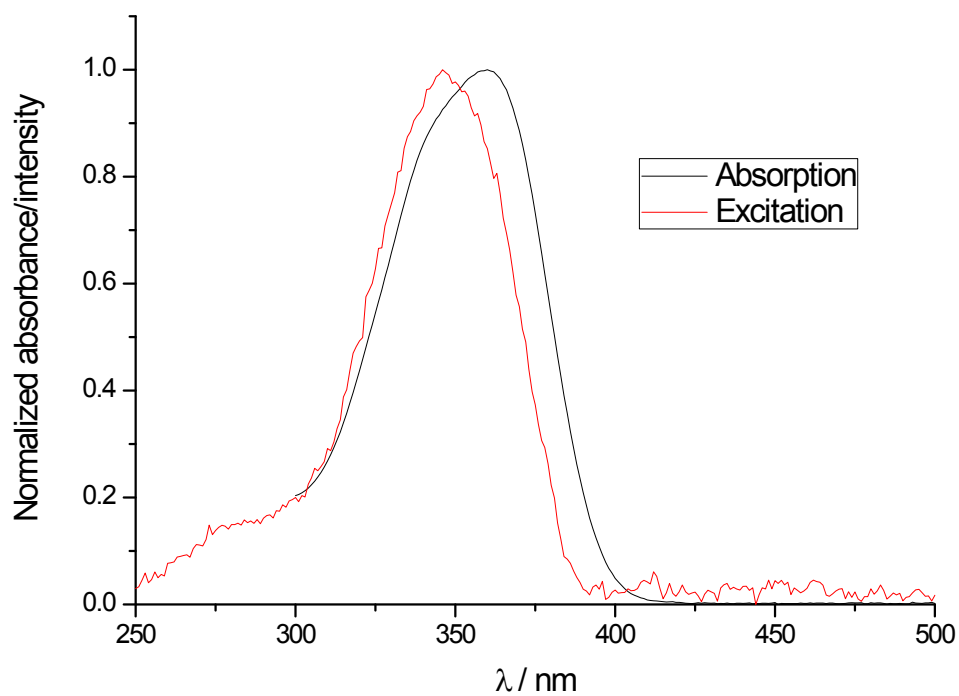


Figure S60 Normalized absorption and excitation spectra of **Yb-1** in tetrahydrofuran

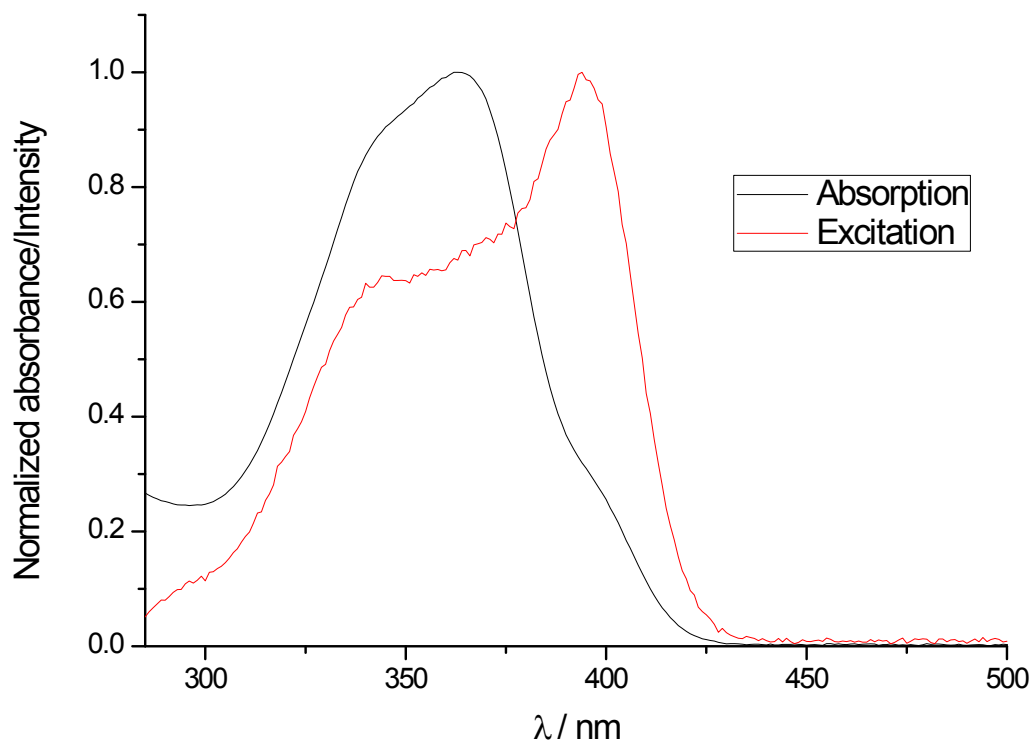


Figure S61 Normalized absorption and excitation spectra of **Yb-1** in toluene

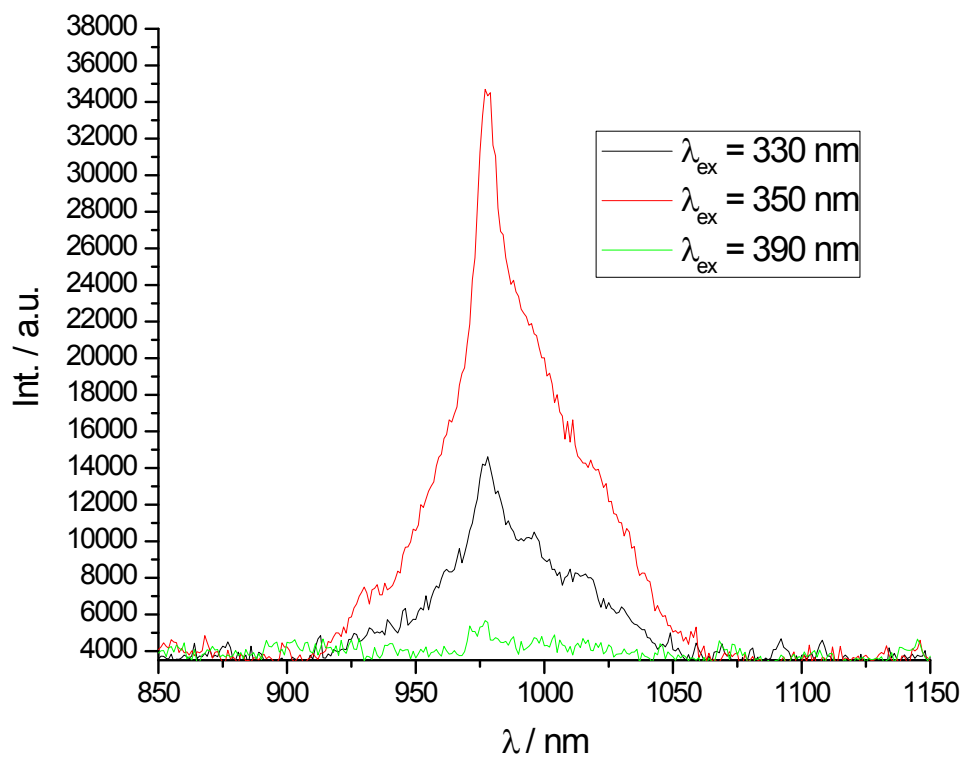


Figure S62 Emission spectra of **Yb-1** in acetone

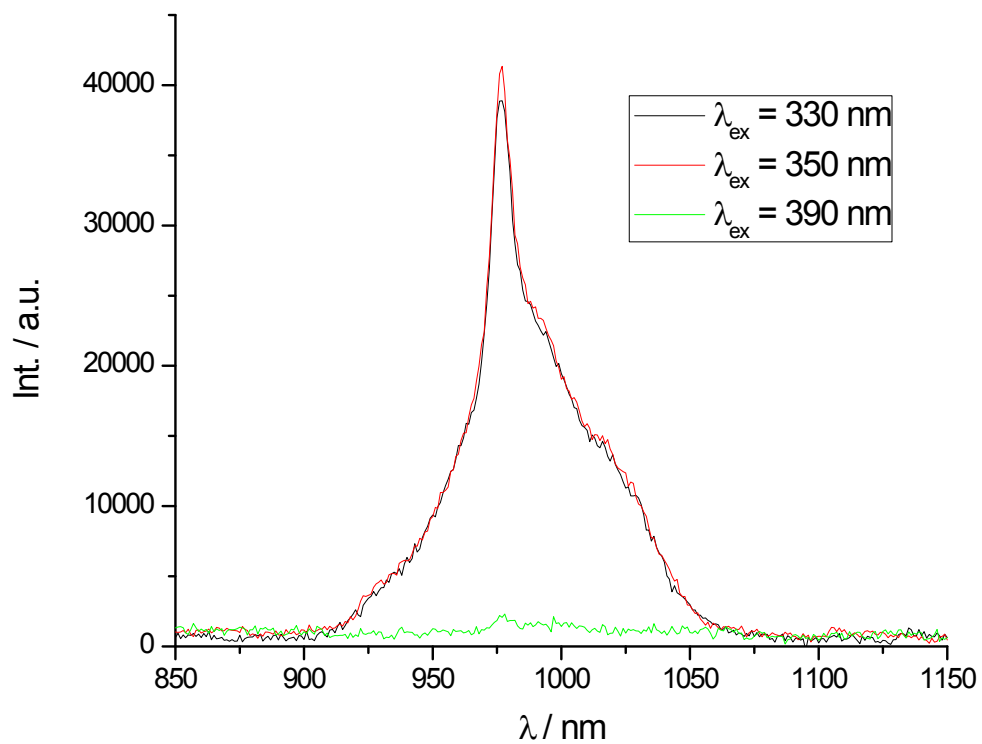


Figure S63 Emission spectra of **Yb-1** in acetonitrile

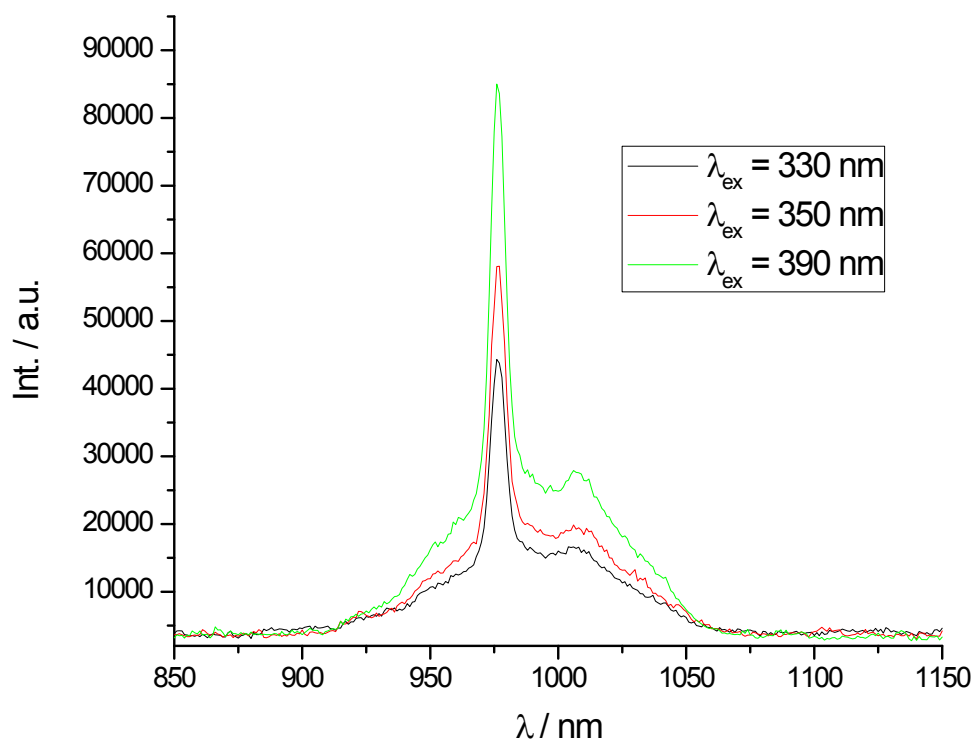


Figure S64 Emission spectra of **Yb-1** in benzene

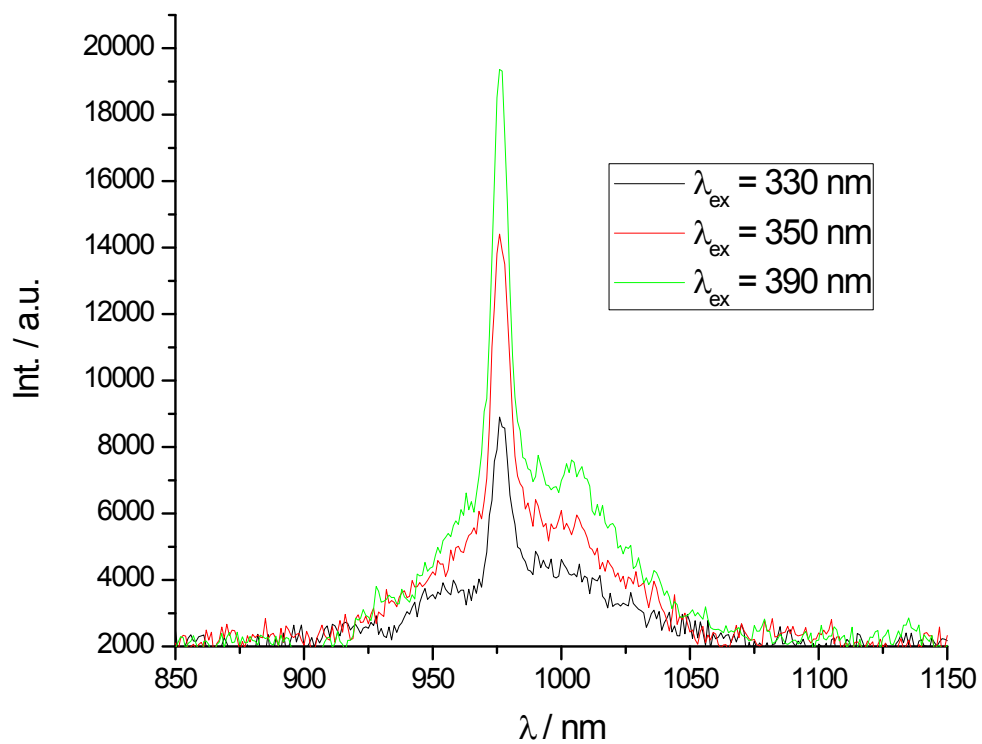


Figure S65 Emission spectra of **Yb-1** in chloroform

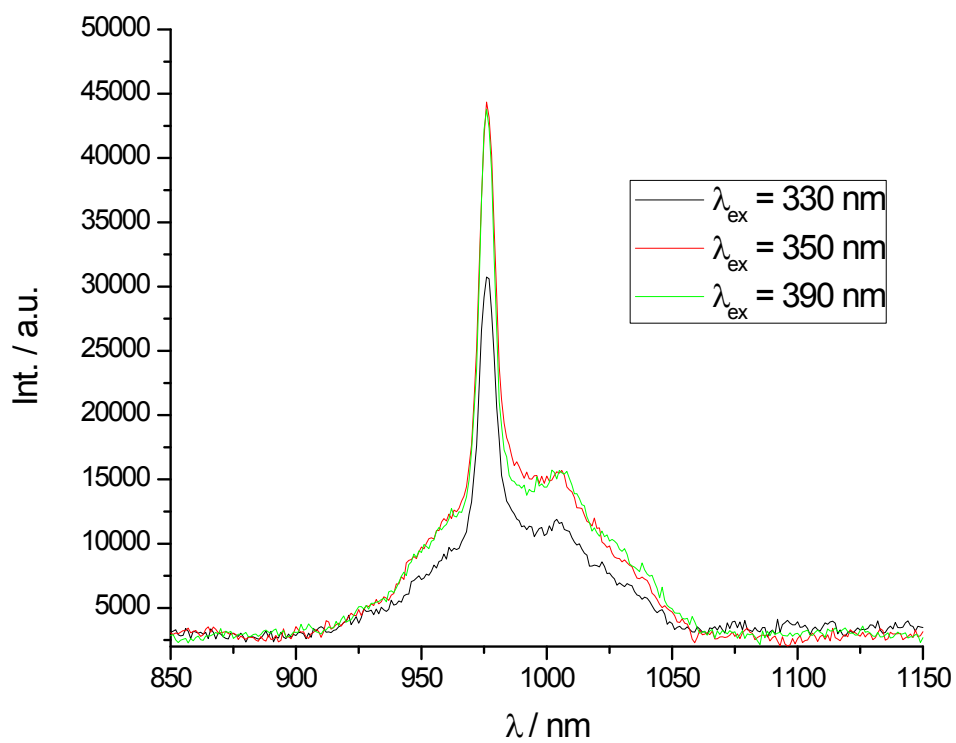


Figure S66 Emission spectra of **Yb-1** in dichloromethane

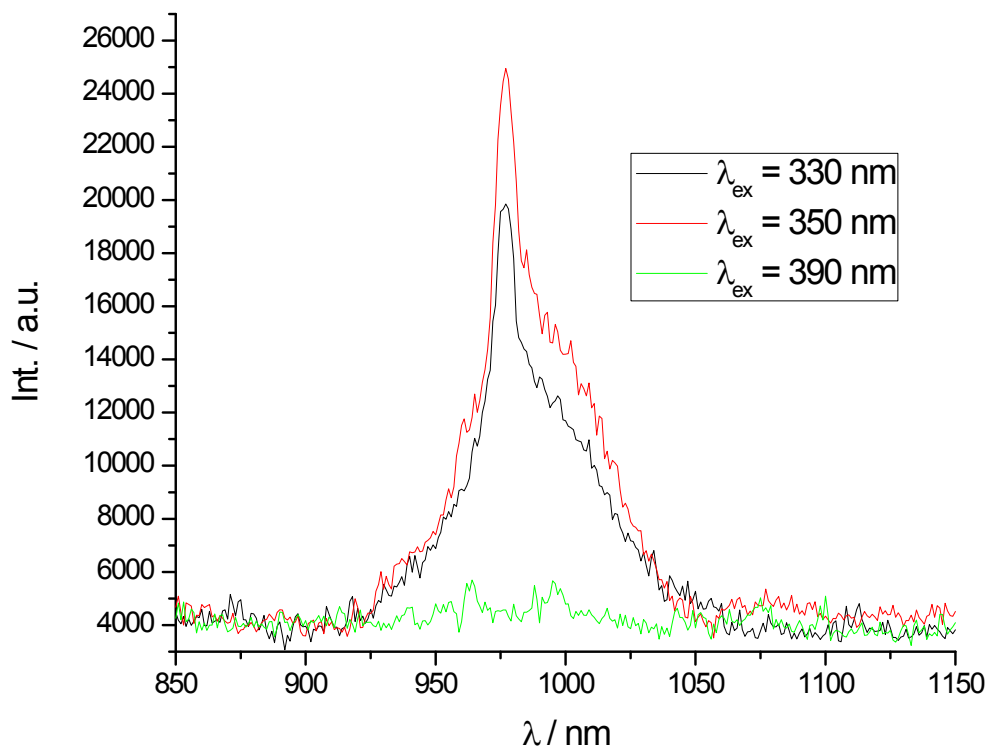


Figure S67 Emission spectra of **Yb-1** in DMSO

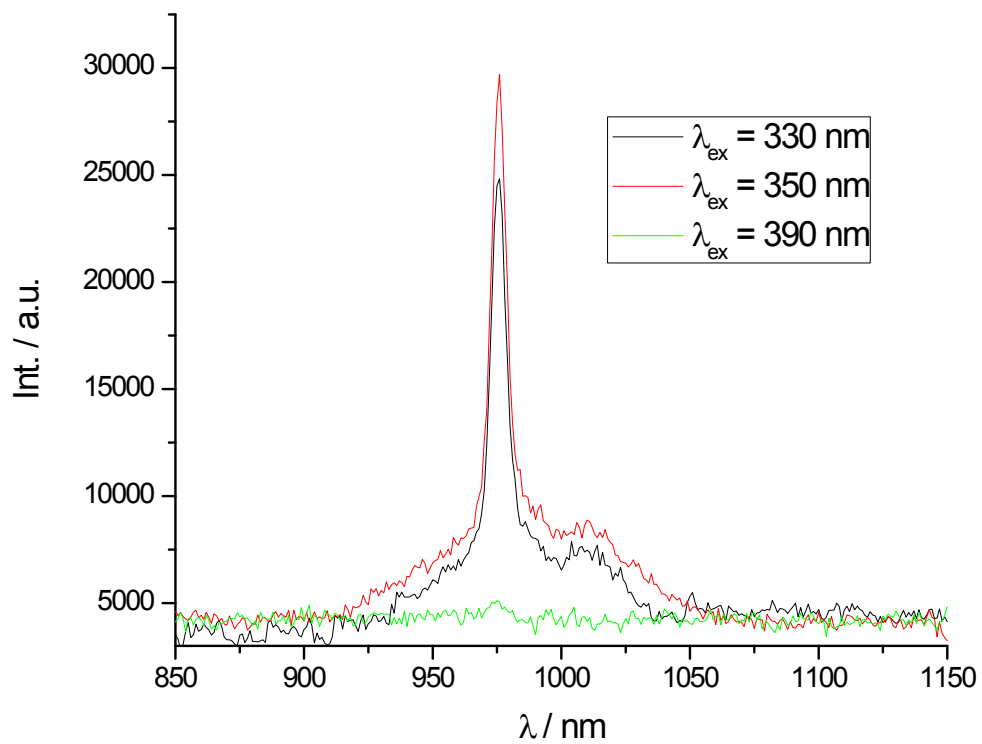


Figure S68 Emission spectra of **Yb-1** in ethyl acetate

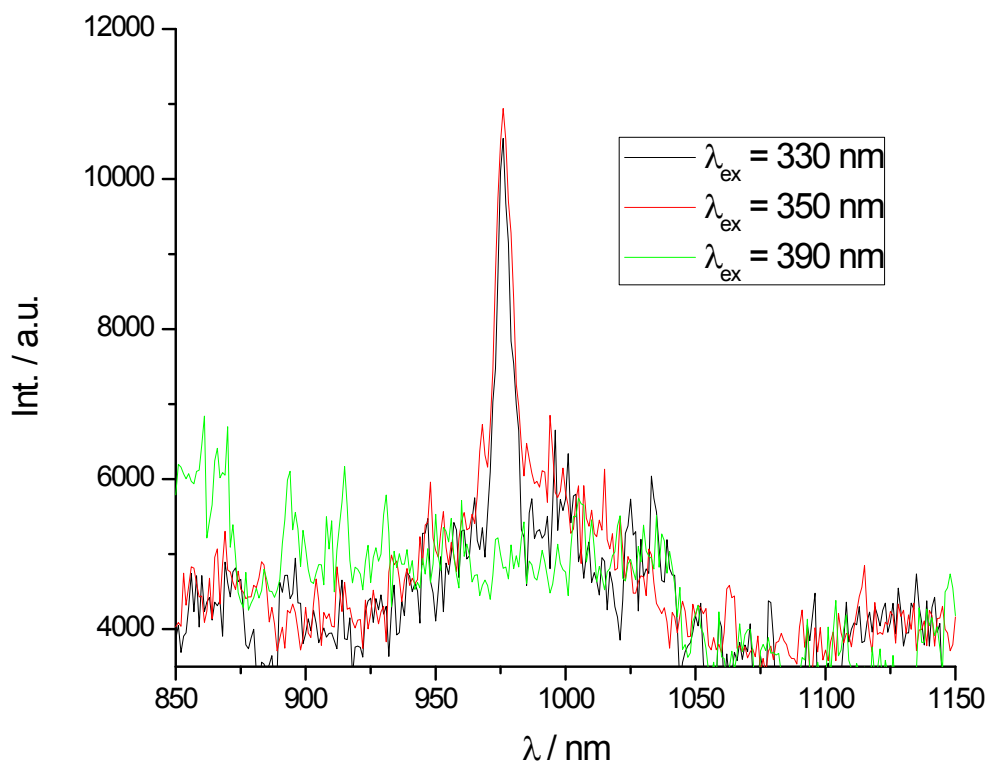


Figure S69 Emission spectra of **Yb-1** in isopropanol

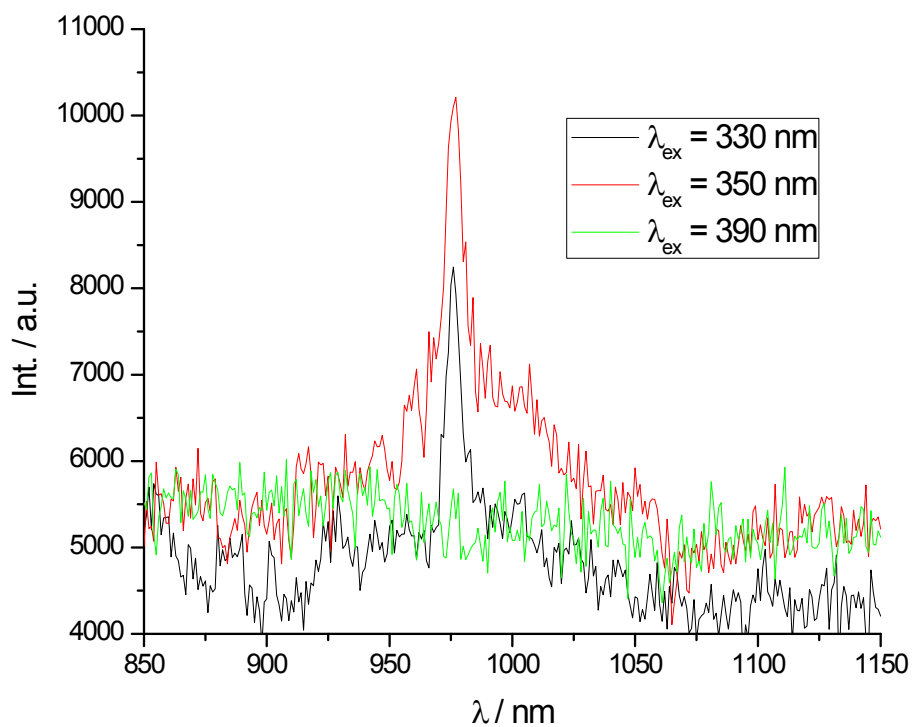


Figure S70 Emission spectra of **Yb-1** in methanol

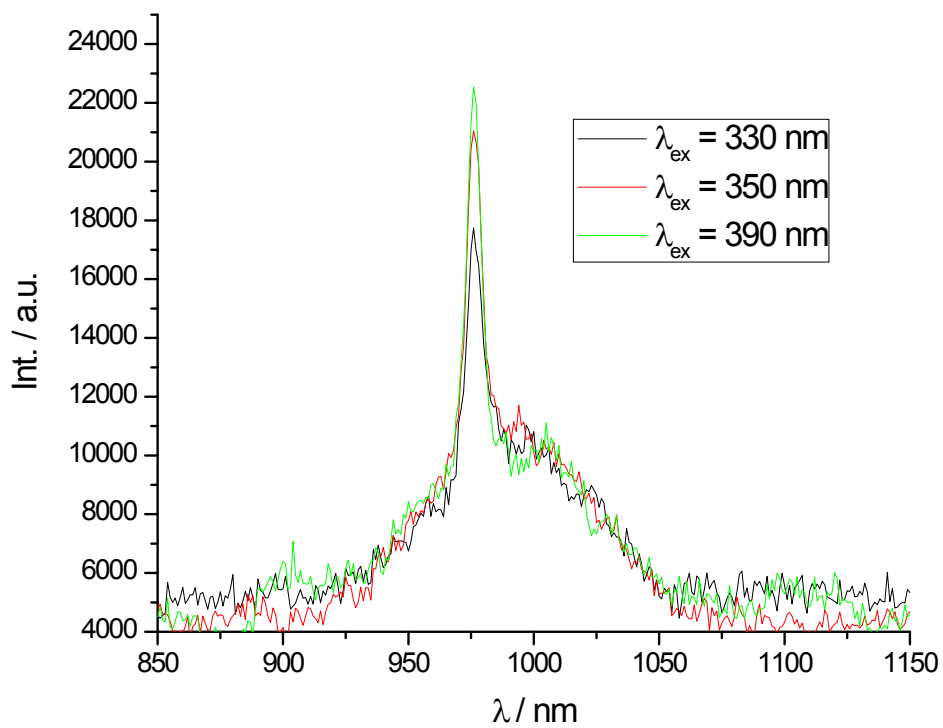


Figure S71 Emission spectra of **Yb-1** in fluorobenzene

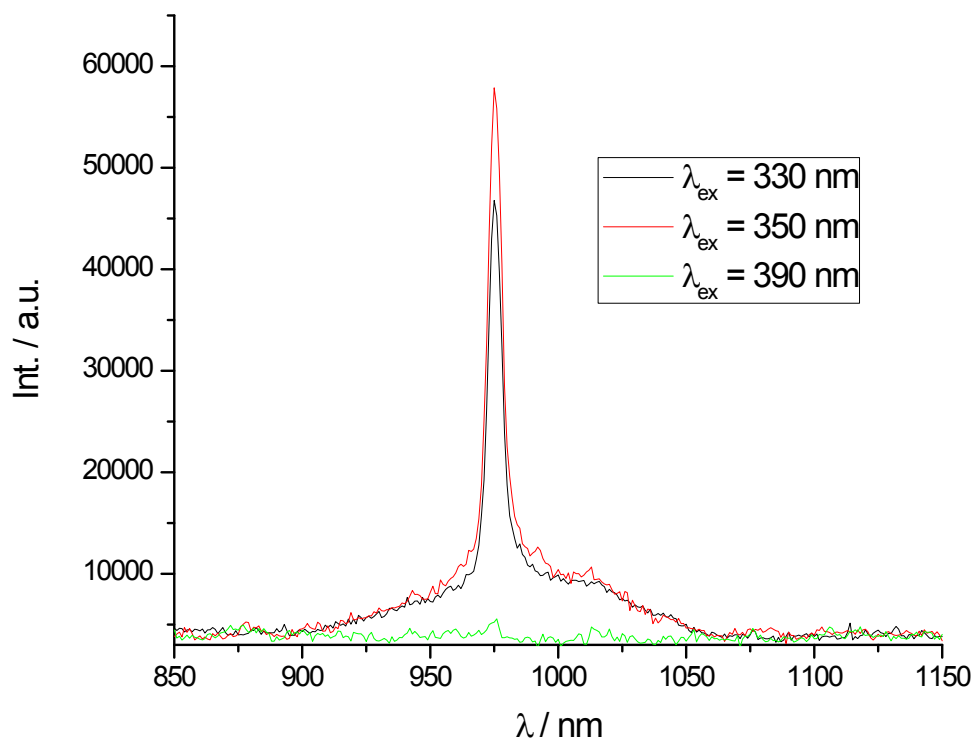


Figure S72 Emission spectra of **Yb-1** in tetrahydrofuran

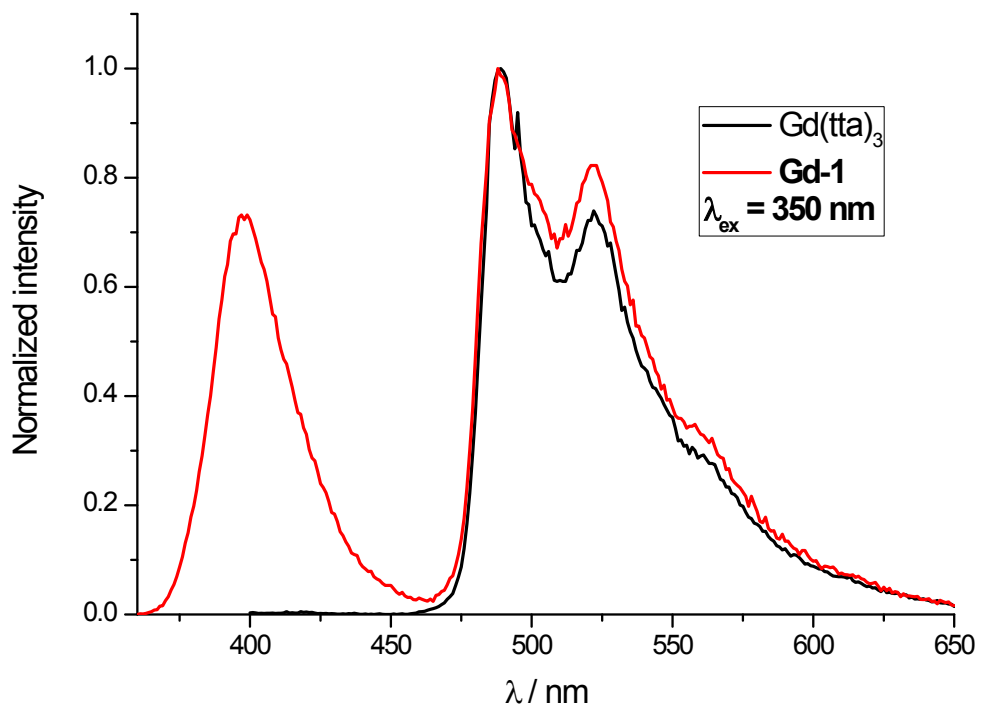


Figure S73 Low temperature (77 K) emission spectra of  $\text{Gd}(\text{tta})_3$  and **Gd-1**

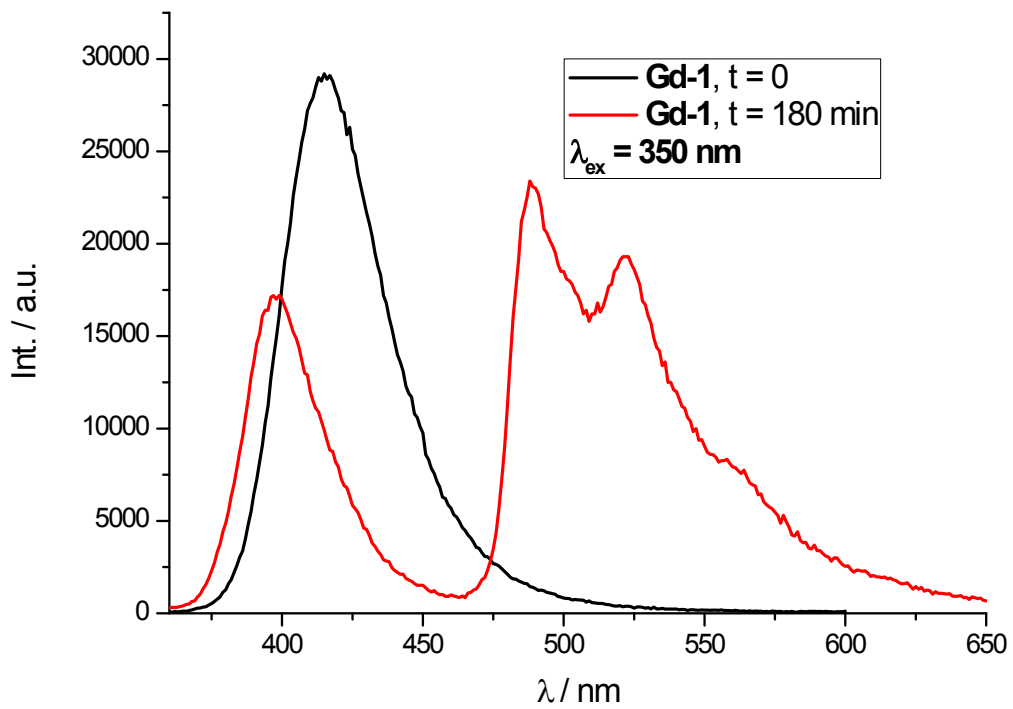


Figure S74 Room temperature and low temperature emission spectra of **Gd-1**



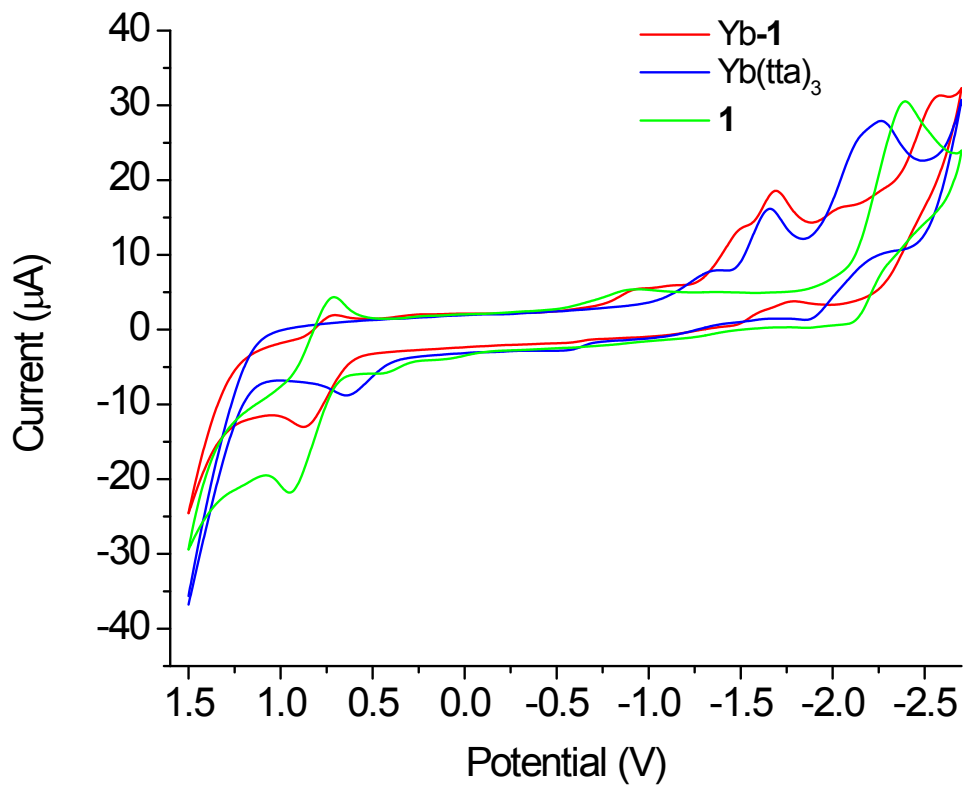


Figure S75 Cyclic voltammograms of **Yb-1**, Yb(tta)<sub>3</sub> and ligand **1**

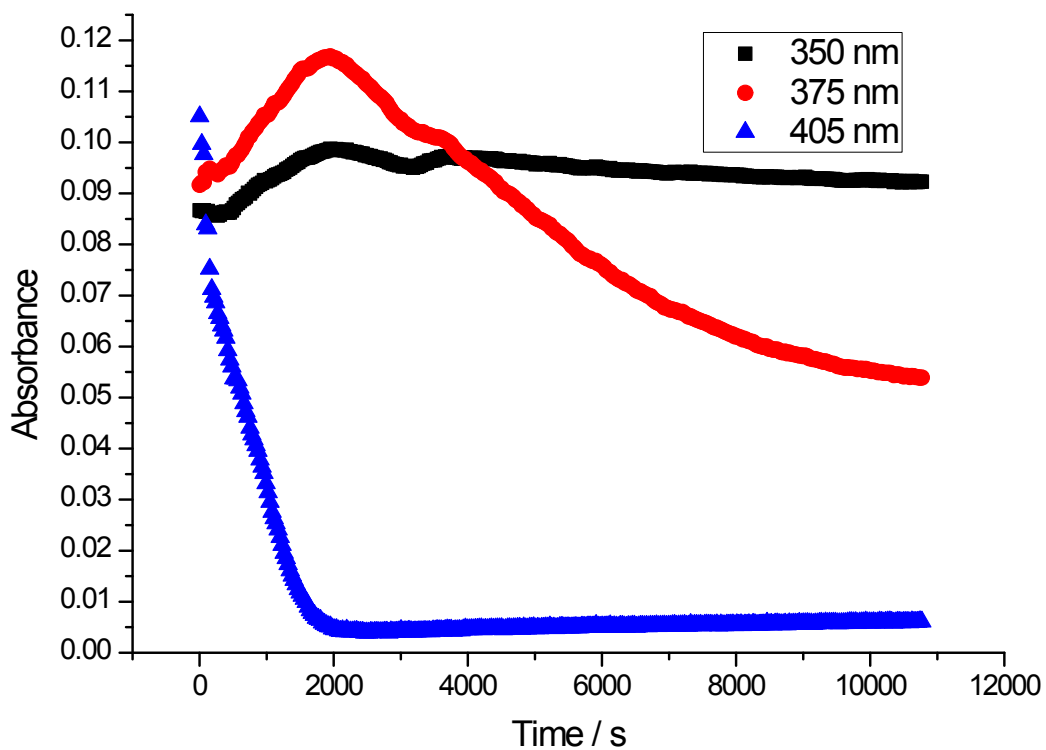


Figure S76 Graph of selected absorbance against time of **Sm-1** in carbon tetrachloride

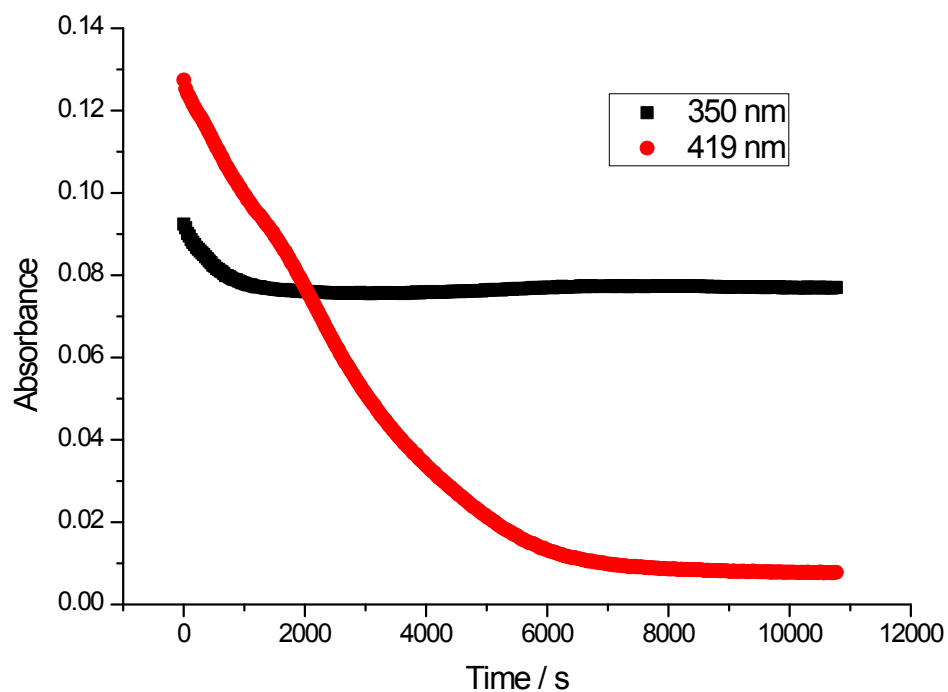


Figure S77 Graph of selected absorbance against time of **Sm-1** in chloroform

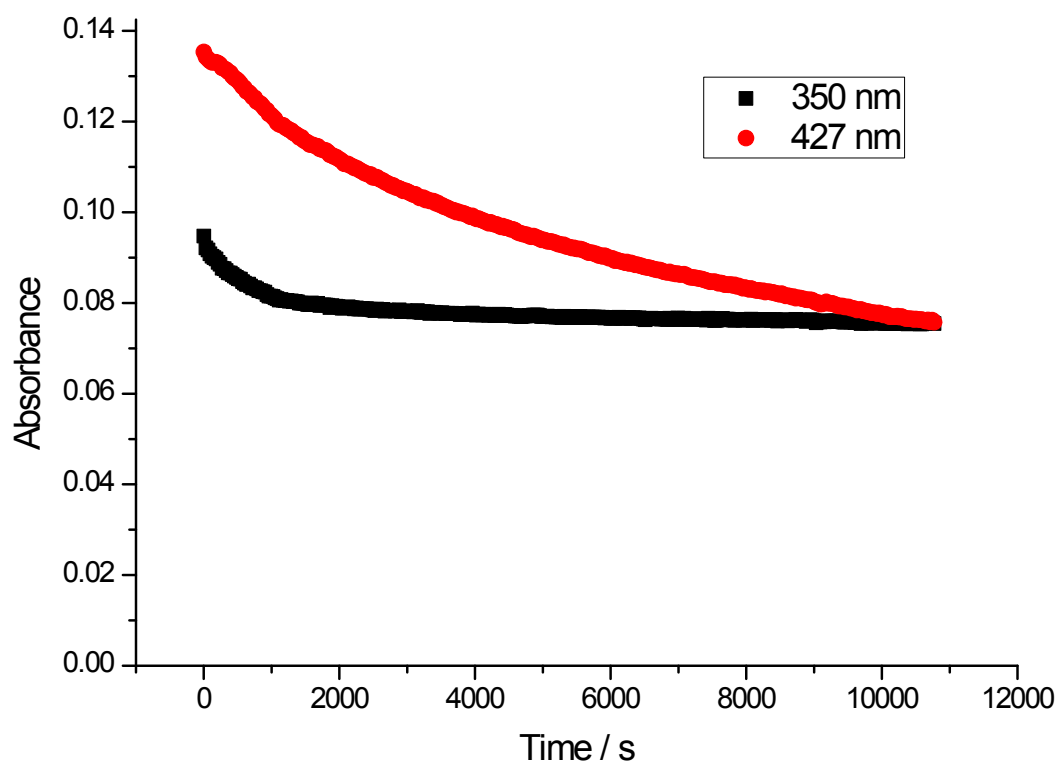


Figure S78 Graph of selected absorbance against time of **Sm-1** in dichloromethane

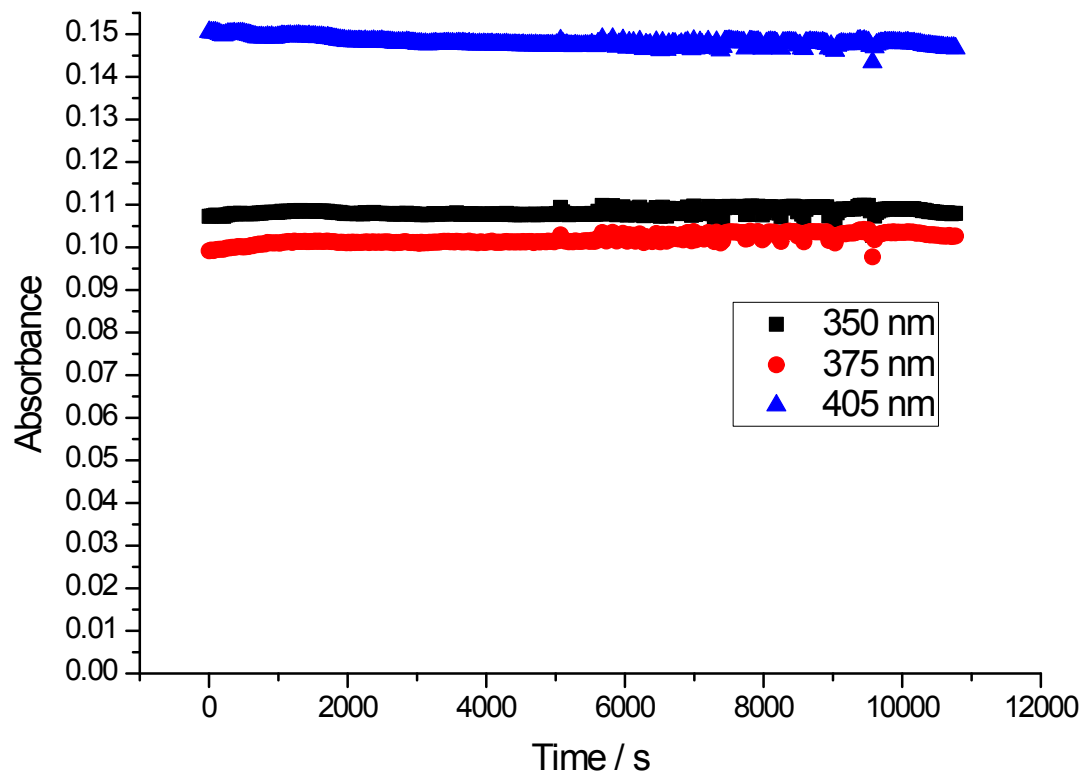


Figure S79 Graph of selected absorbance against time of **Sm-1** in benzene