

Supplementary Information

Synthesis and Photovoltaic Properties of Novel Ferrocene-Substituted Metallophthalocyanines

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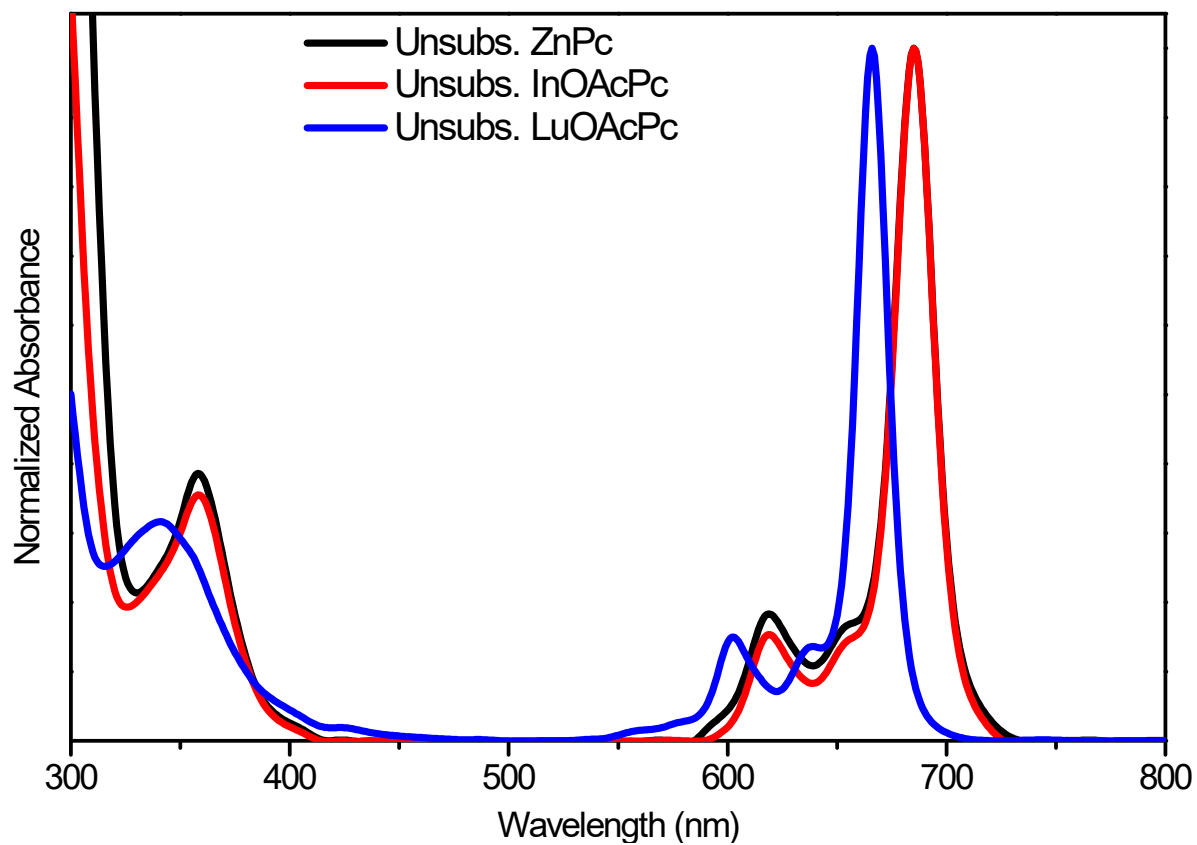


Figure S1. The UV-Vis comparison spectra of the unsubstituted metal phthalocyanines.

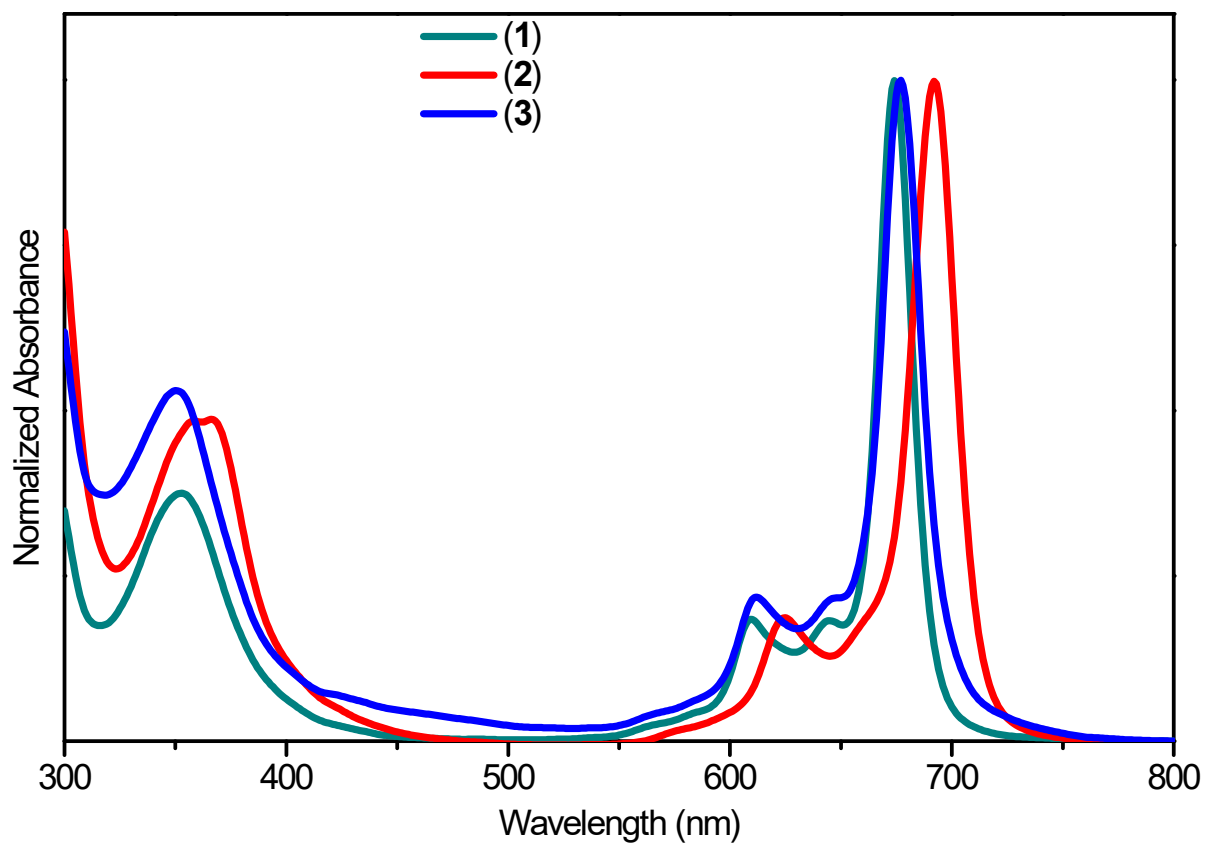


Figure S2. The UV-Vis comparison spectra of the tetrakis(iodo) substituted zinc(II) (1), indium(III) (2) and lutetium(III) (3) phthalocyanines.

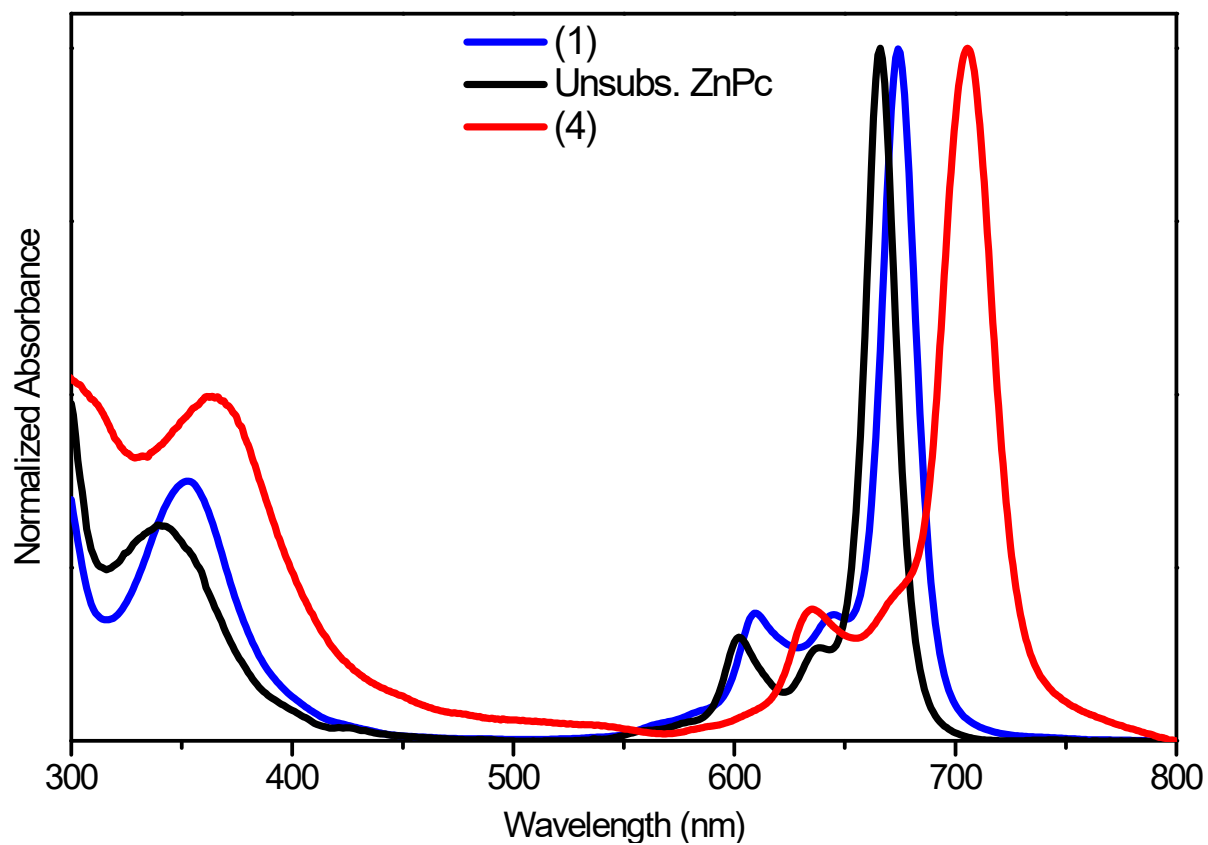


Figure S3. The UV-Vis comparison spectra of the zinc(II) phthalocyanines.

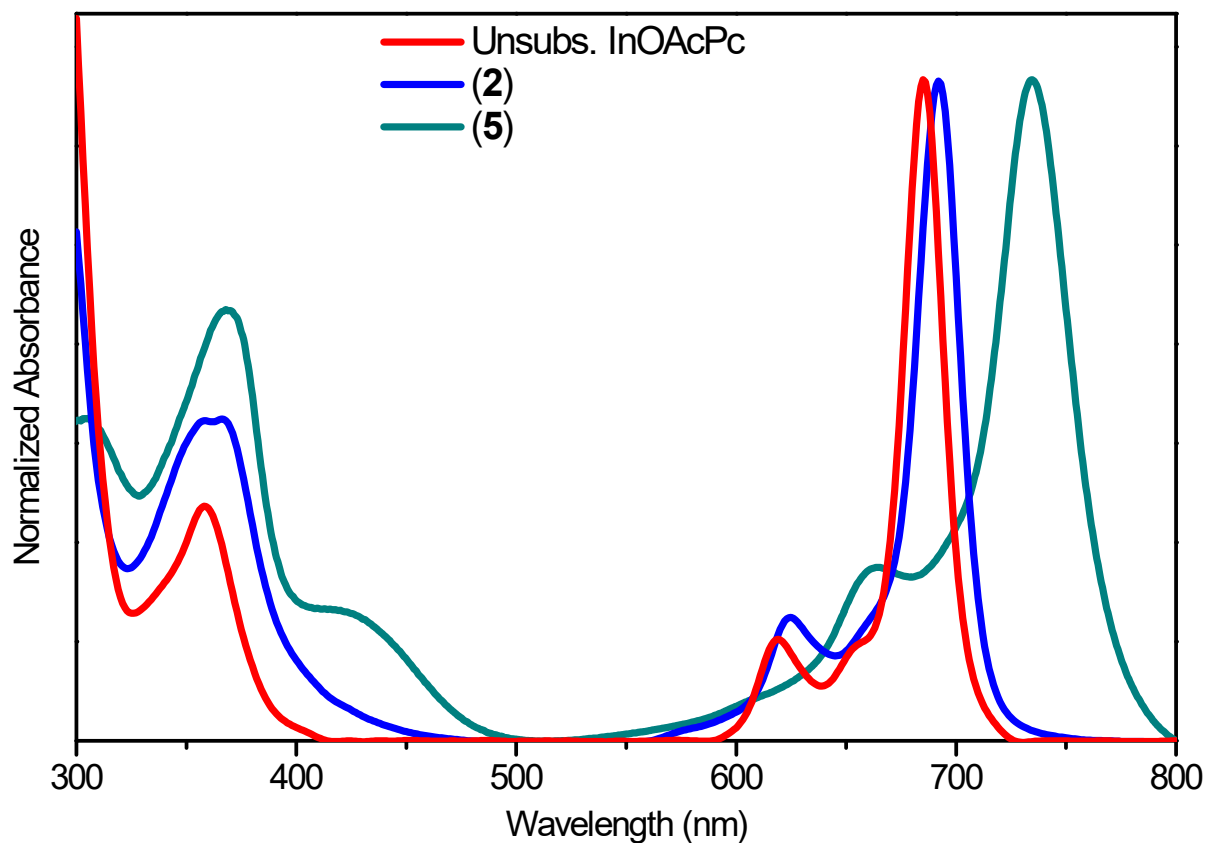


Figure S4. The UV-Vis comparison spectra of the indium(III) phthalocyanines.

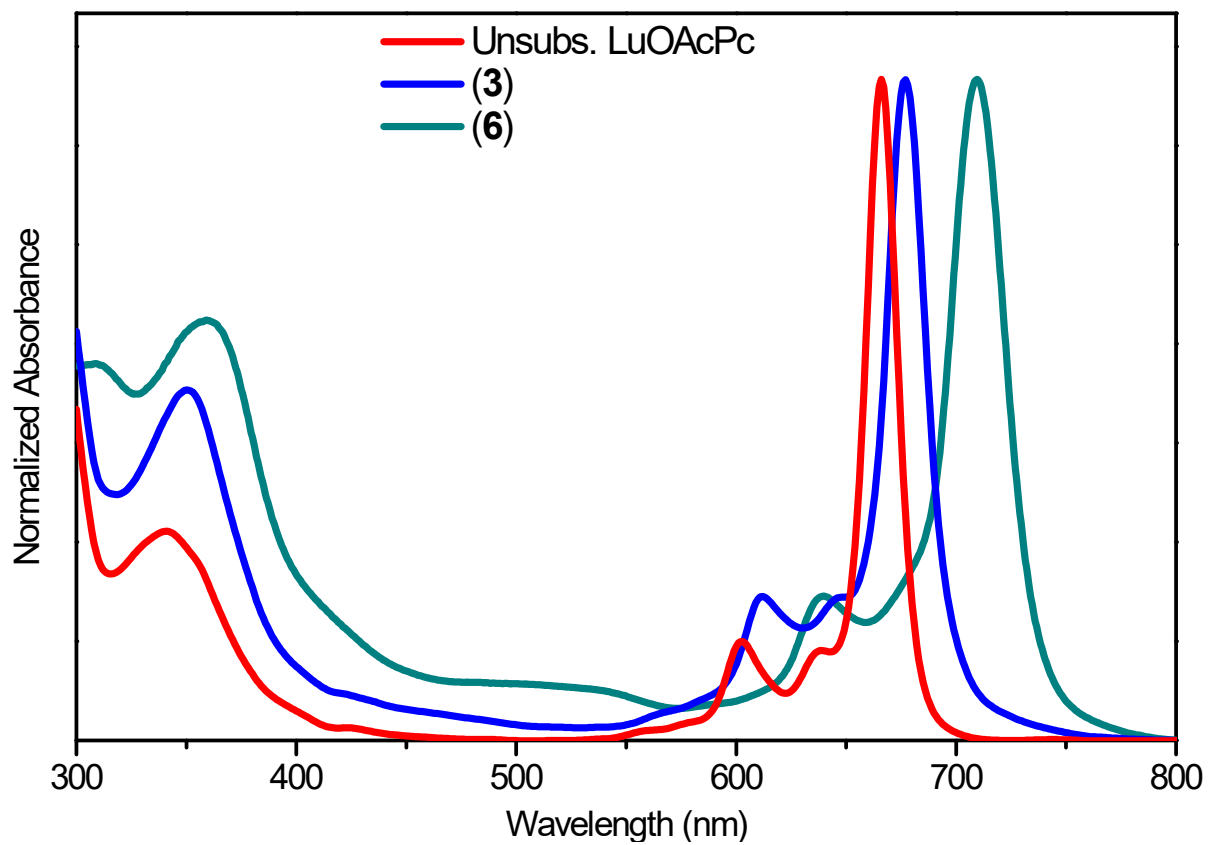


Figure S5. The UV-Vis comparison spectra of the lutetium(III) phthalocyanines.

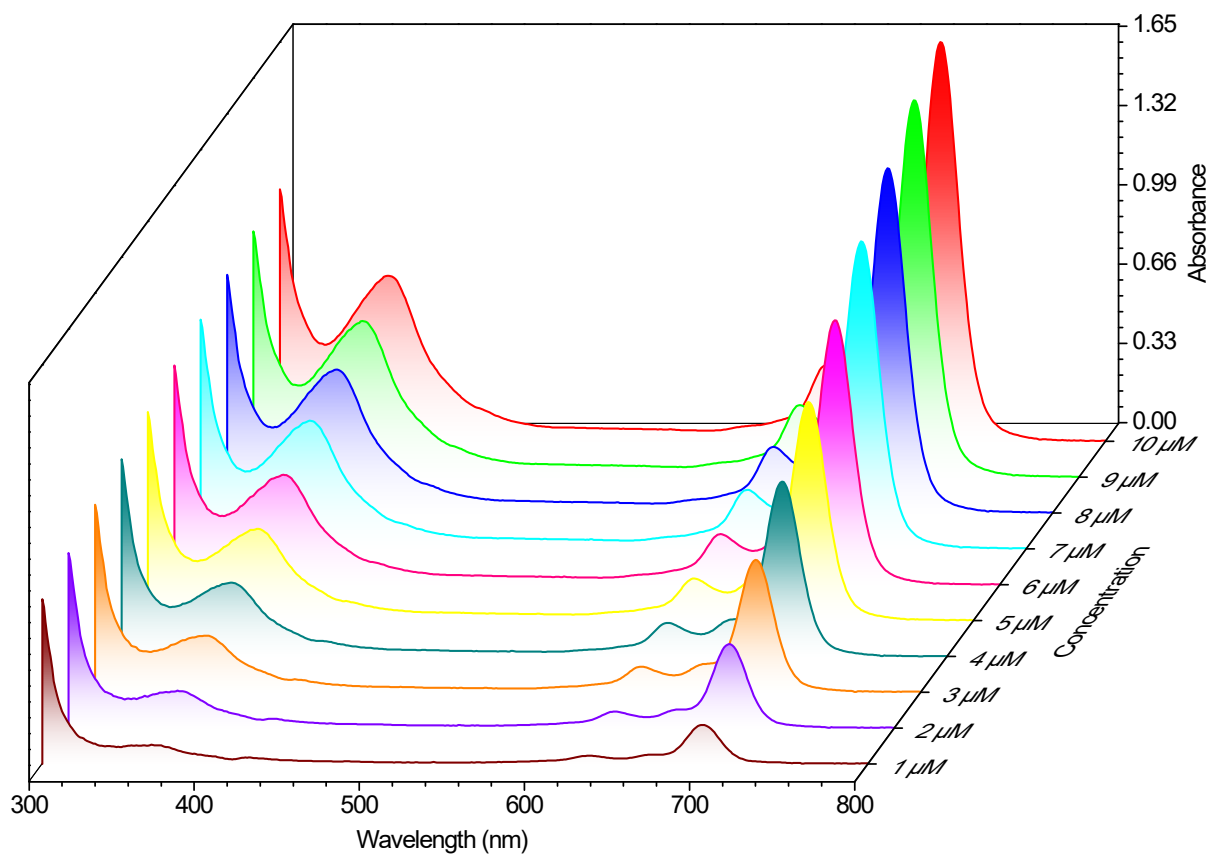


Figure S6. UV-Vis spectra of phthalocyanine **4** at different concentrations in dichloromethane.

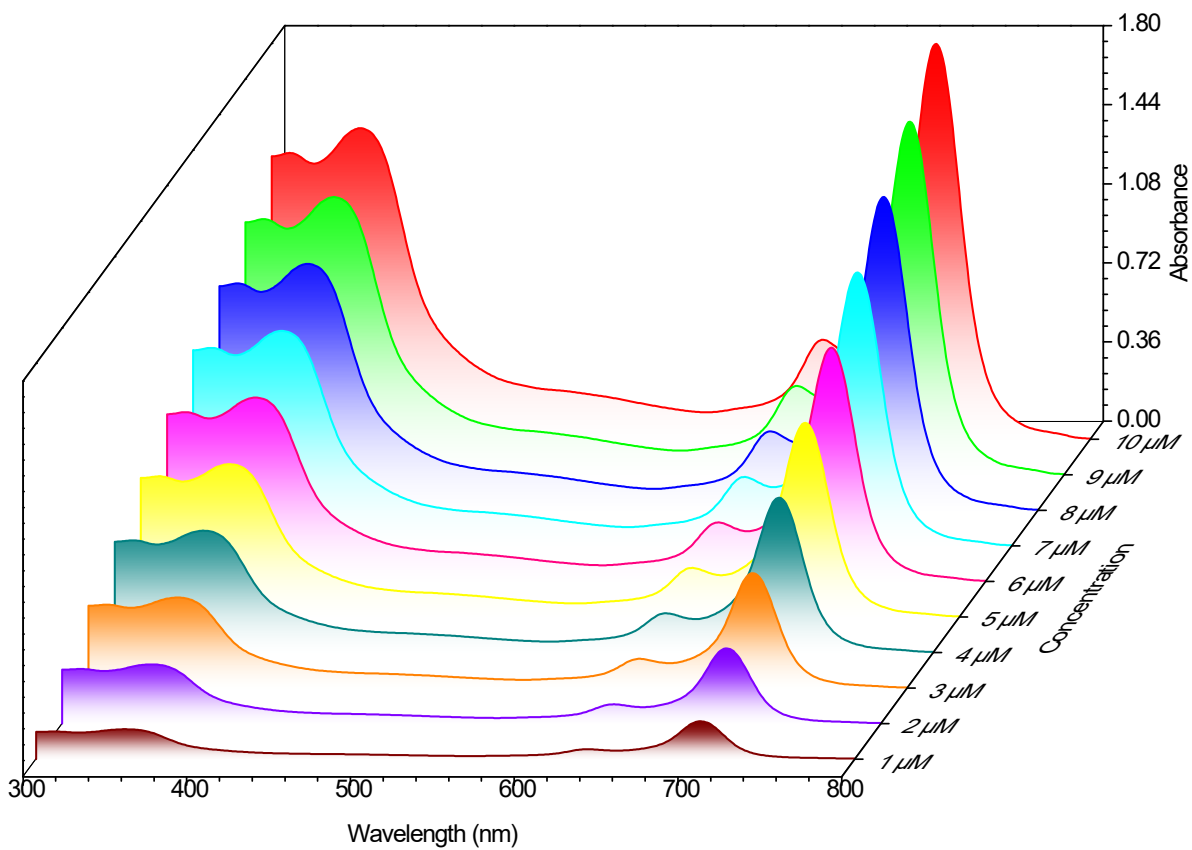


Figure S7. UV-Vis spectra of phthalocyanine **6** at different concentrations in dichloromethane.

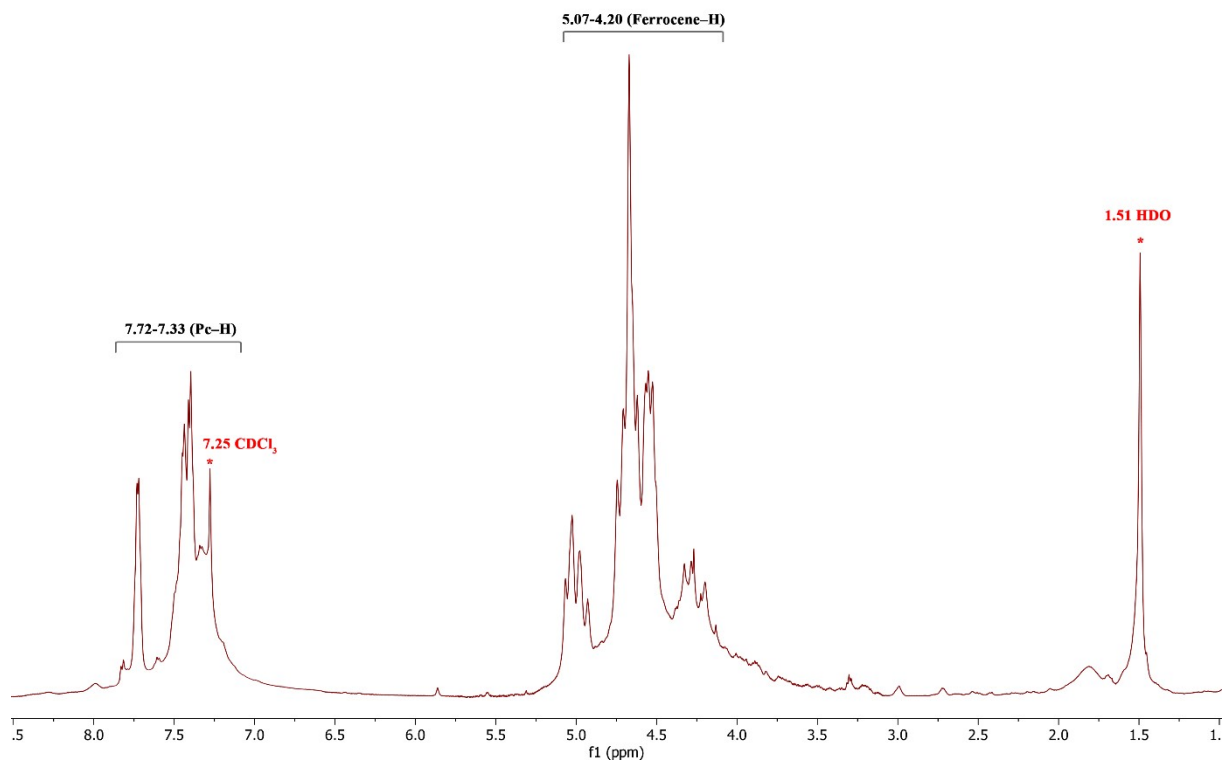


Figure S8. $^1\text{H-NMR}$ spectrum of phthalocyanine 4.

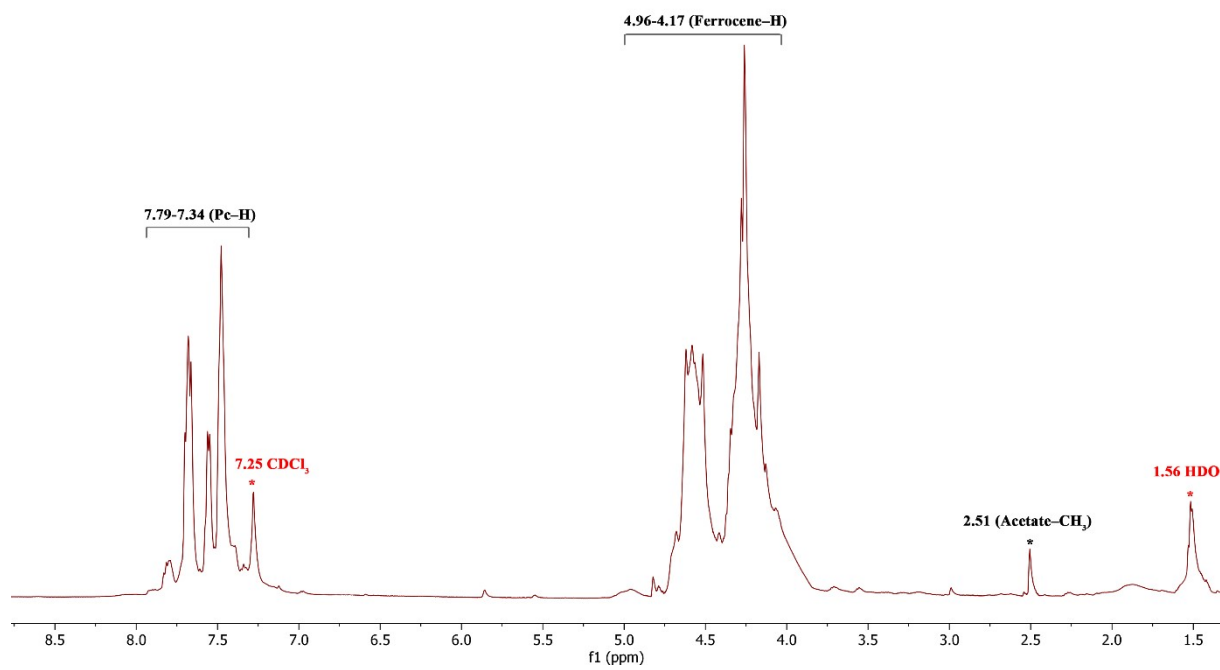


Figure S9. ^1H -NMR spectrum of phthalocyanine 5.

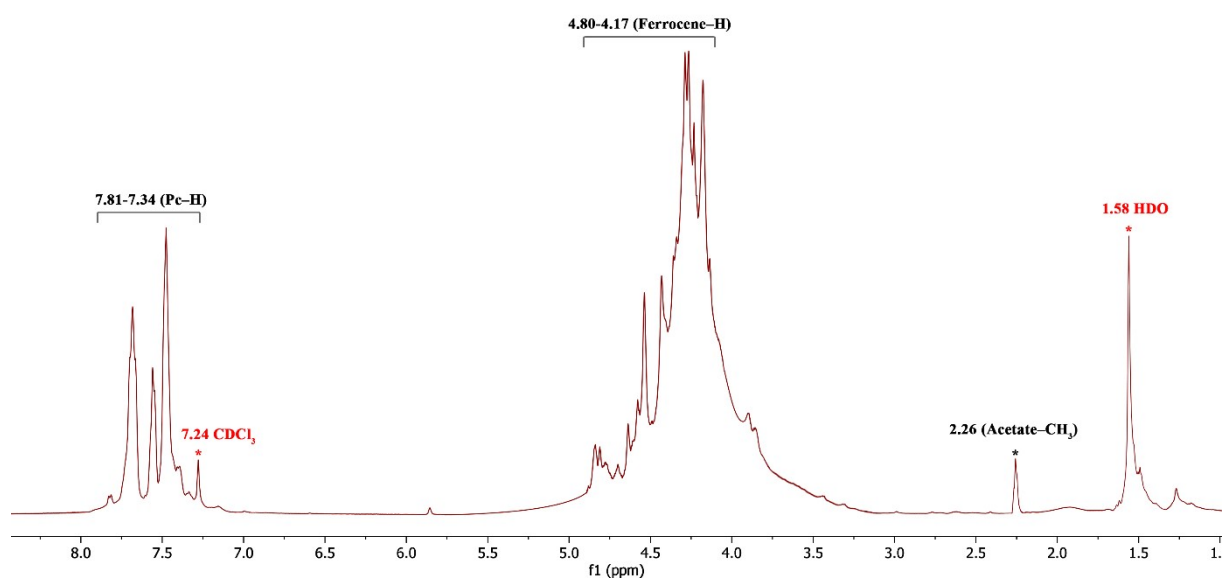


Figure S10. ¹H-NMR spectrum of phthalocyanine **6**.

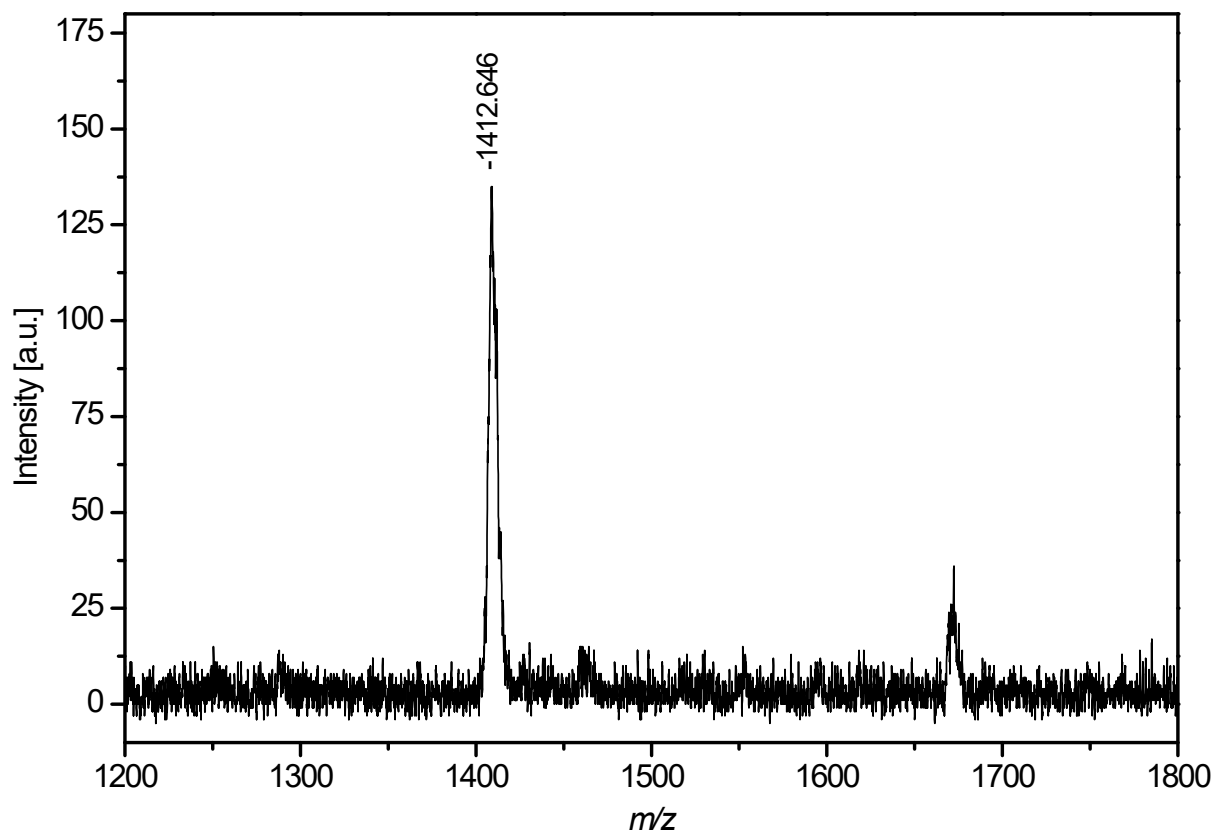


Figure S11. MALDI-TOF-Mass spectrum of phthalocyanine **4** using DHB as a matrix.

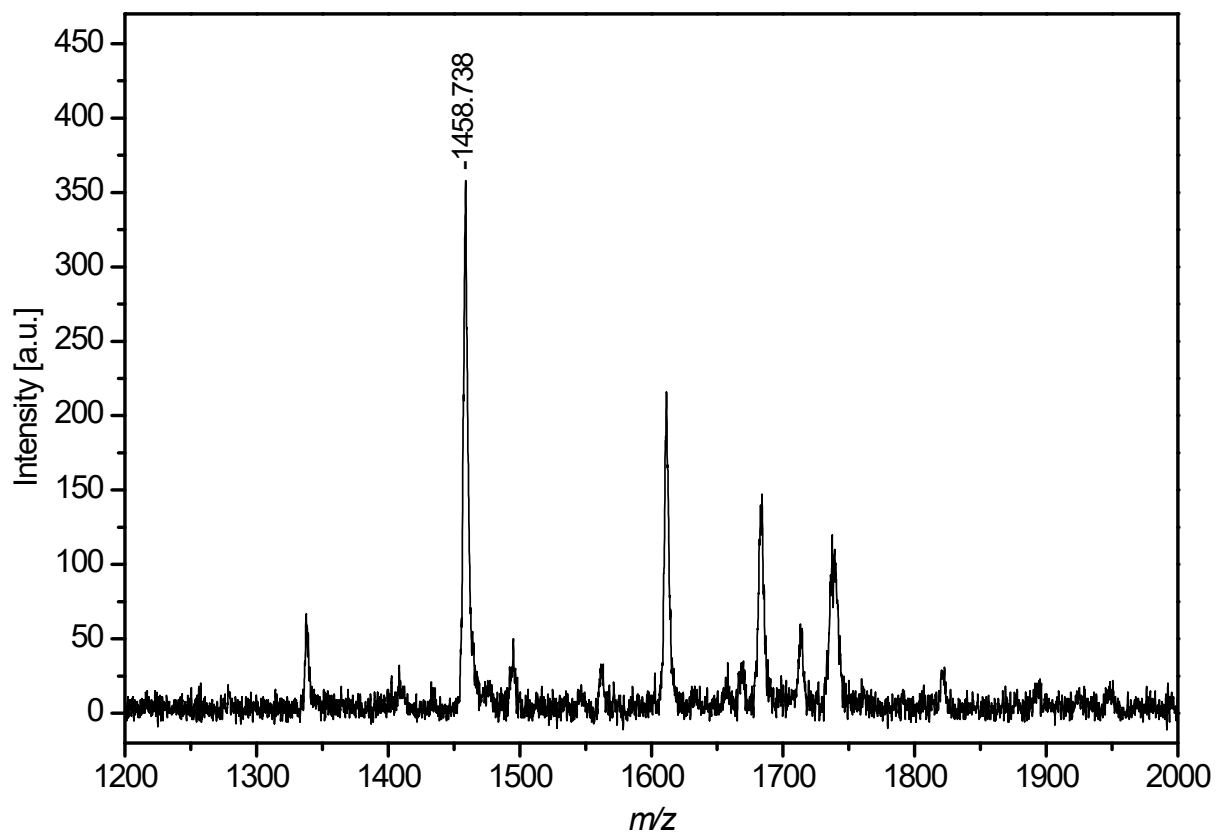


Figure S12. MALDI-TOF-Mass spectrum of phthalocyanine **5** using DHB as a matrix.

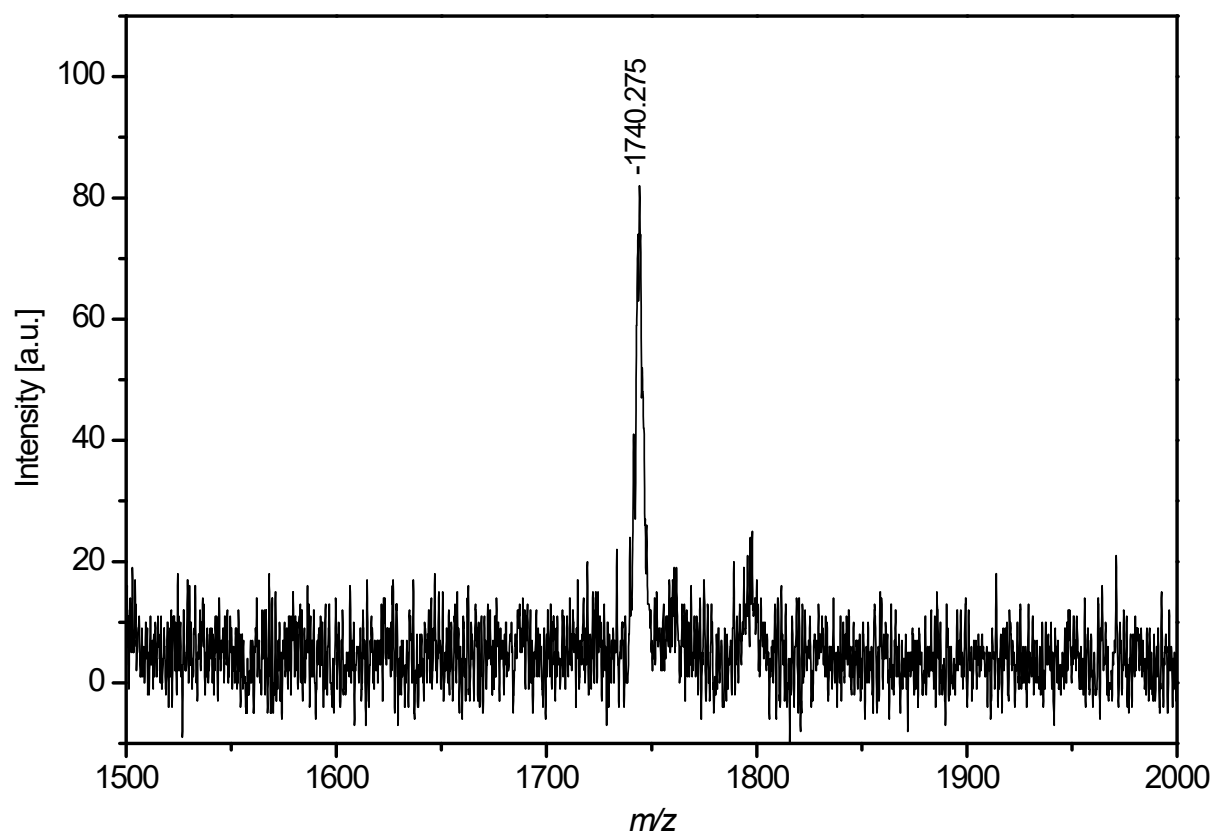


Figure S13. MALDI-TOF-Mass spectrum of phthalocyanine **6** using DHB as a matrix.

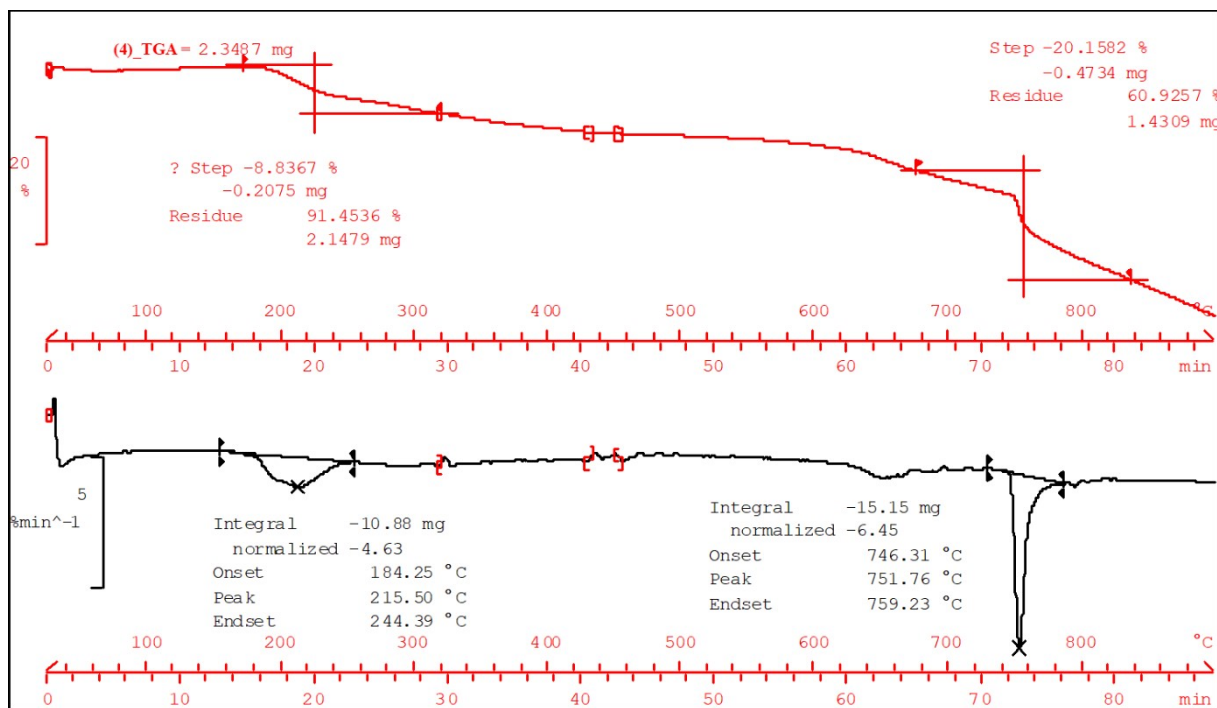


Figure 14. The TGA curve of phthalocyanine 4.

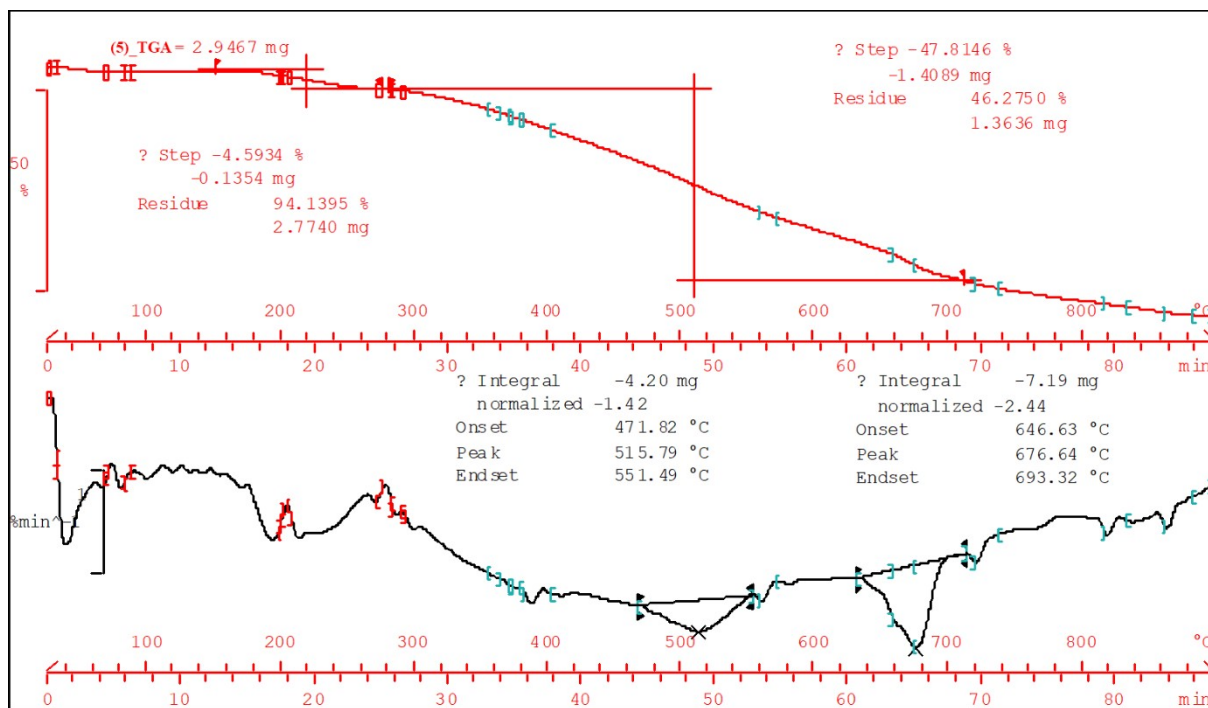


Figure 15. The TGA curve of phthalocyanine 5.

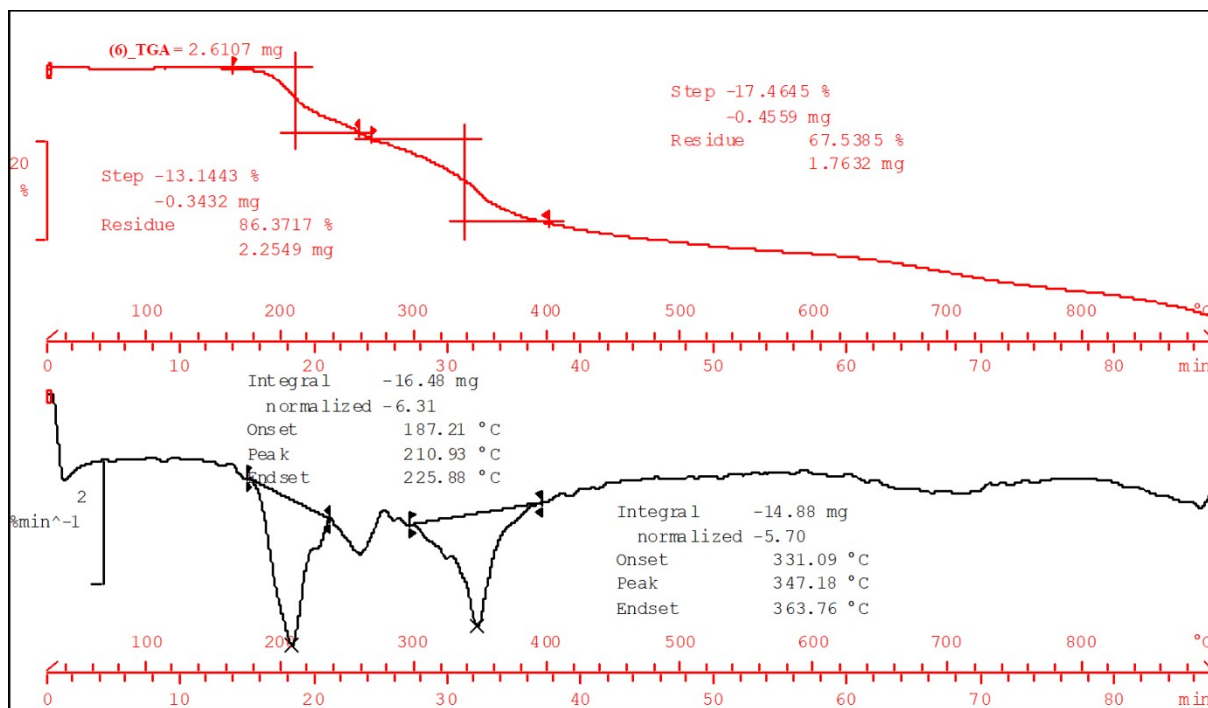


Figure S16. The TGA curve of phthalocyanine 6.

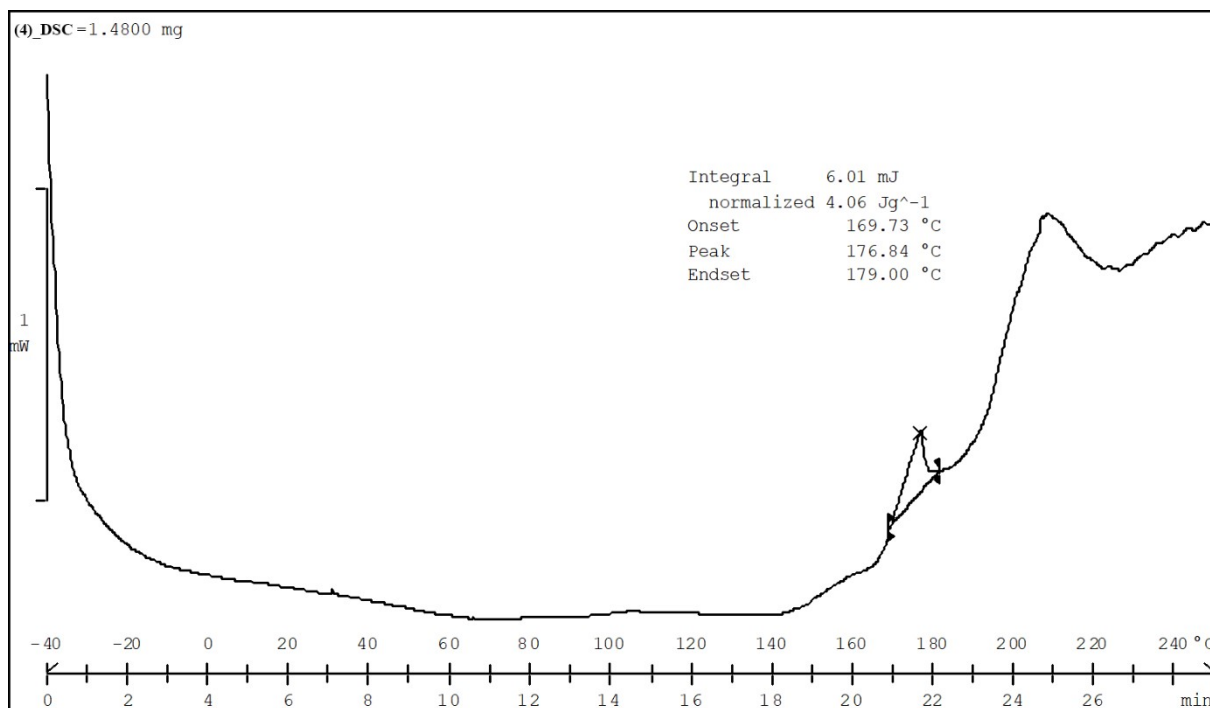


Figure S17. The DSC curve of phthalocyanine **4**.

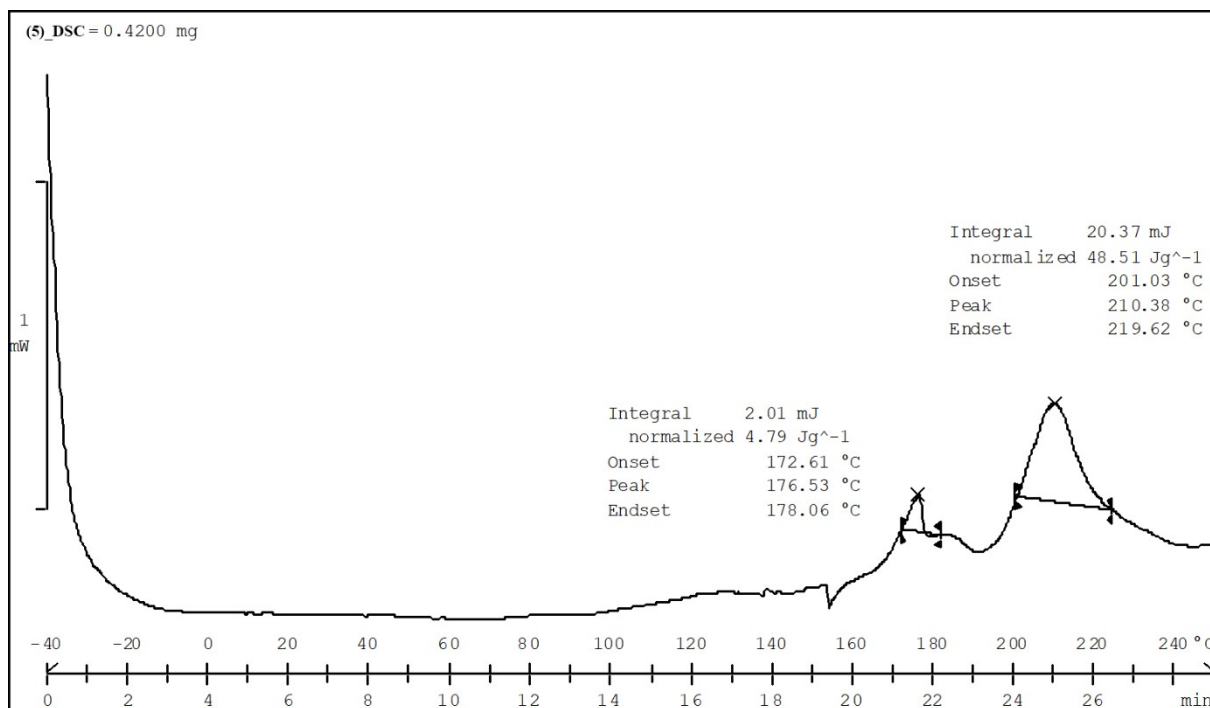


Figure S18. The DSC curve of phthalocyanine 5.

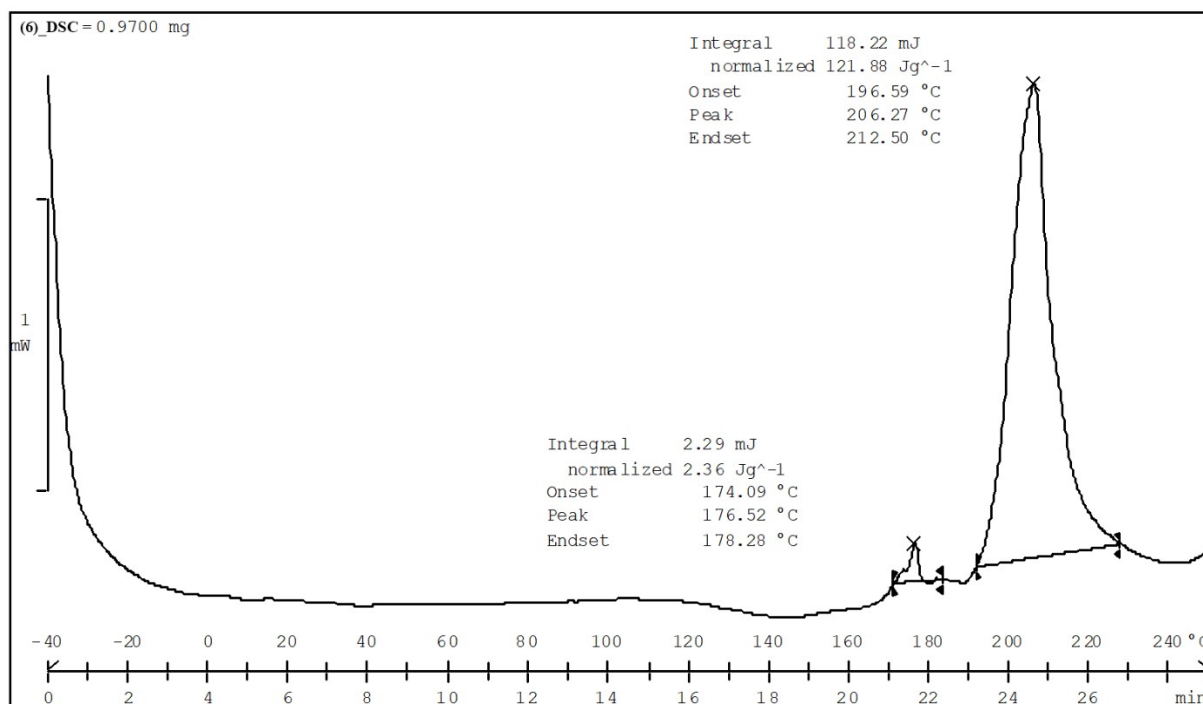


Figure S19. The DSC curve of phthalocyanine **6**.

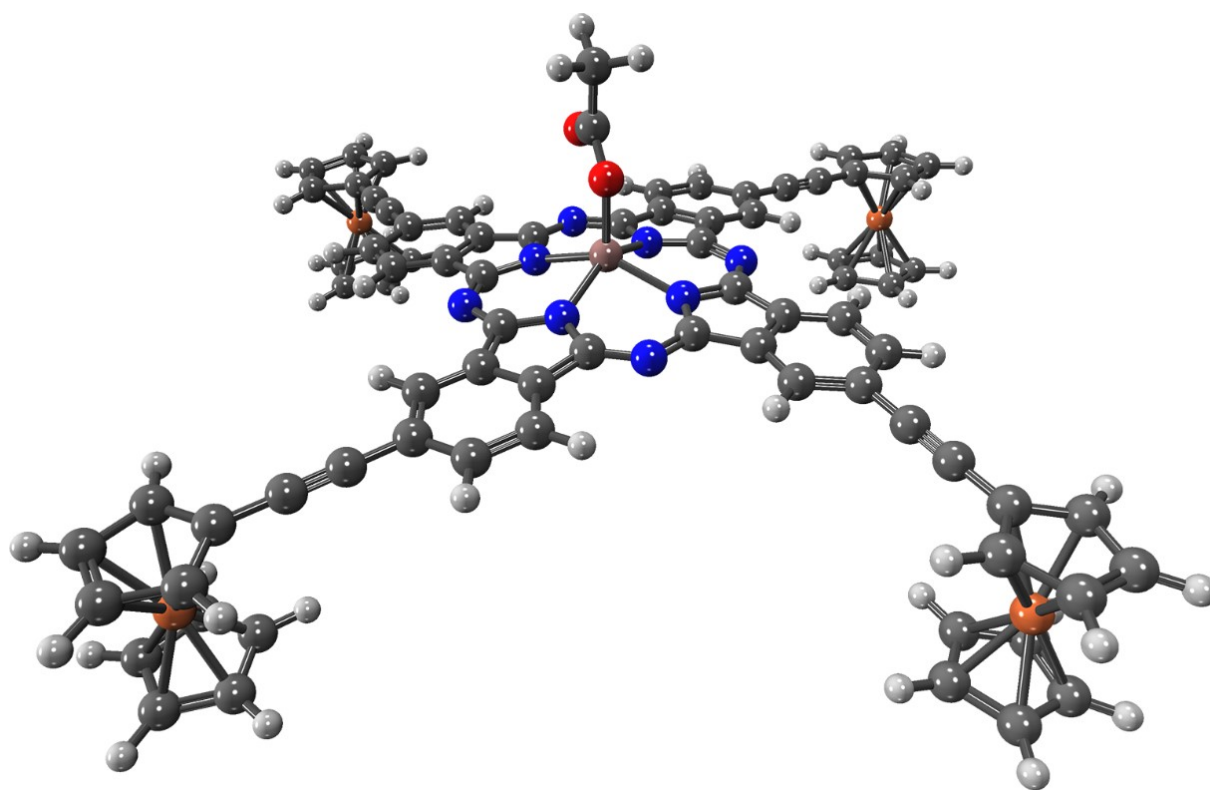


Figure S20. The optimized 3D molecular geometry of indium(III) phthalocyanine (**5**).

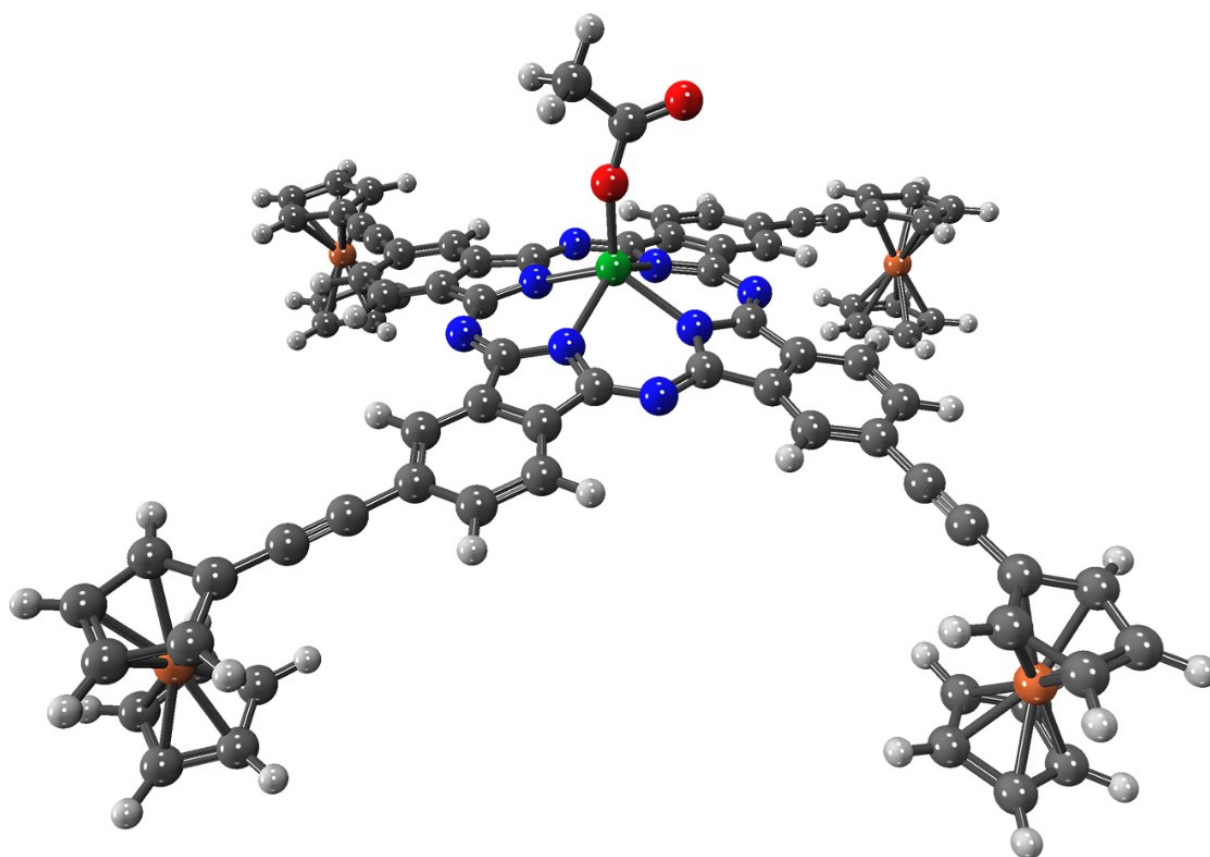
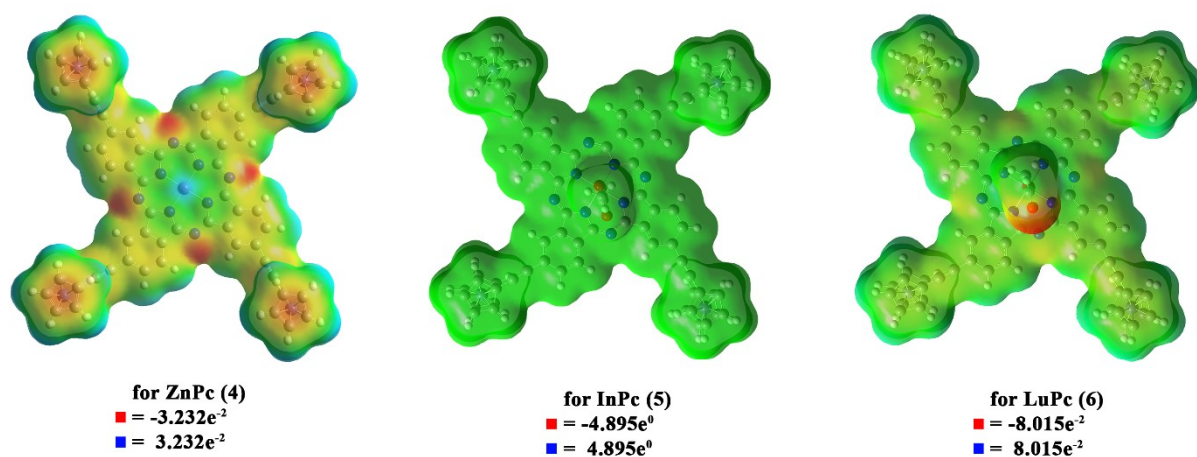


Figure S21. The optimized 3D molecular geometry of lutetium(III) phthalocyanine (**6**).



Electronegative region Neutral Electropositive Region

Figure S22. The calculated electron density surface of compounds 4-6.