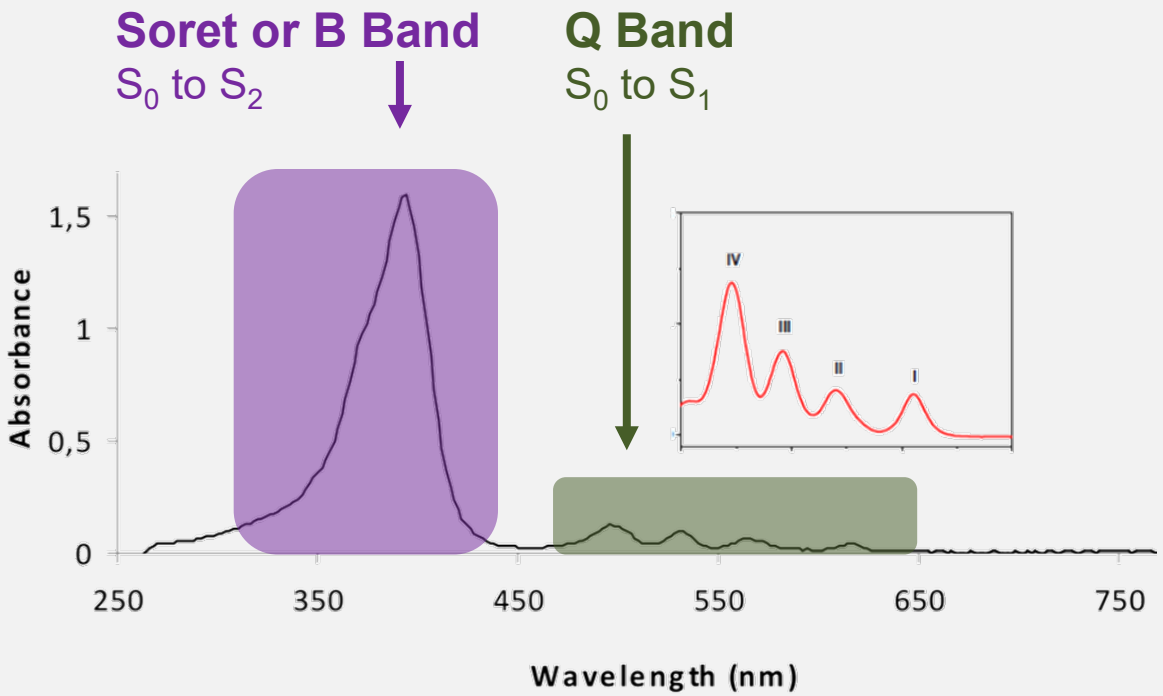
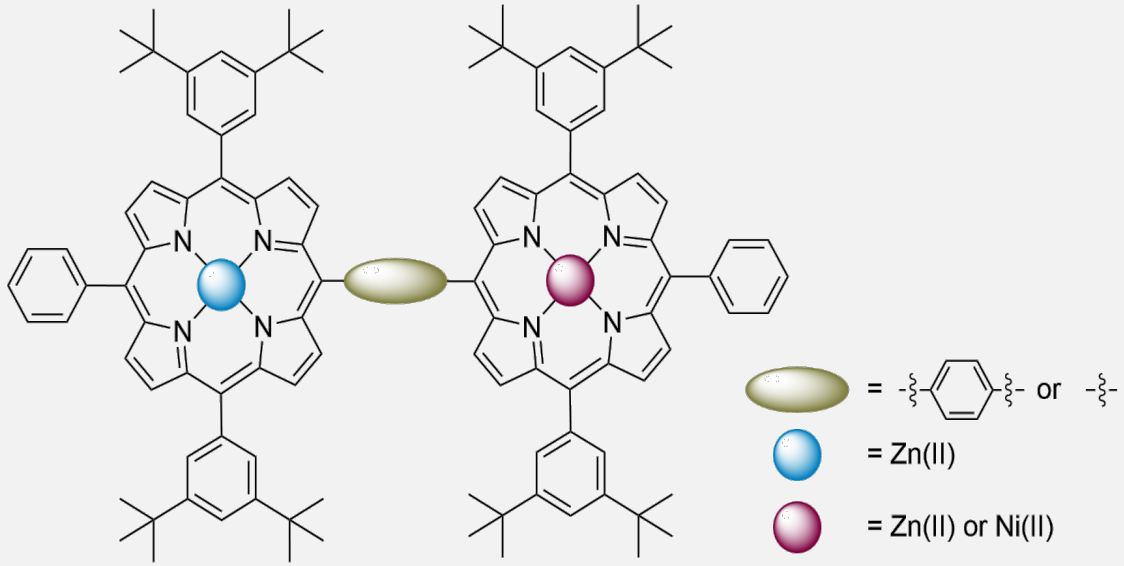
Synthesis and Characterisation of Metallo-Porphyrin Dyads

J. Thiede[1], R. Ingle[2], M. Chergui[2], S. Liu[1], R. Häner[1]*

[1]Department of Chemistry and Biochemistry, University of Bern, Freiestrasse 3, 3012 Bern, Switzerland,
[2]Laboratory of Ultrafast Spectroscopy LSU, École polytechnique fédérale de Lausanne, Station 3, CH-1015 Lausanne

Introduction & Objectives



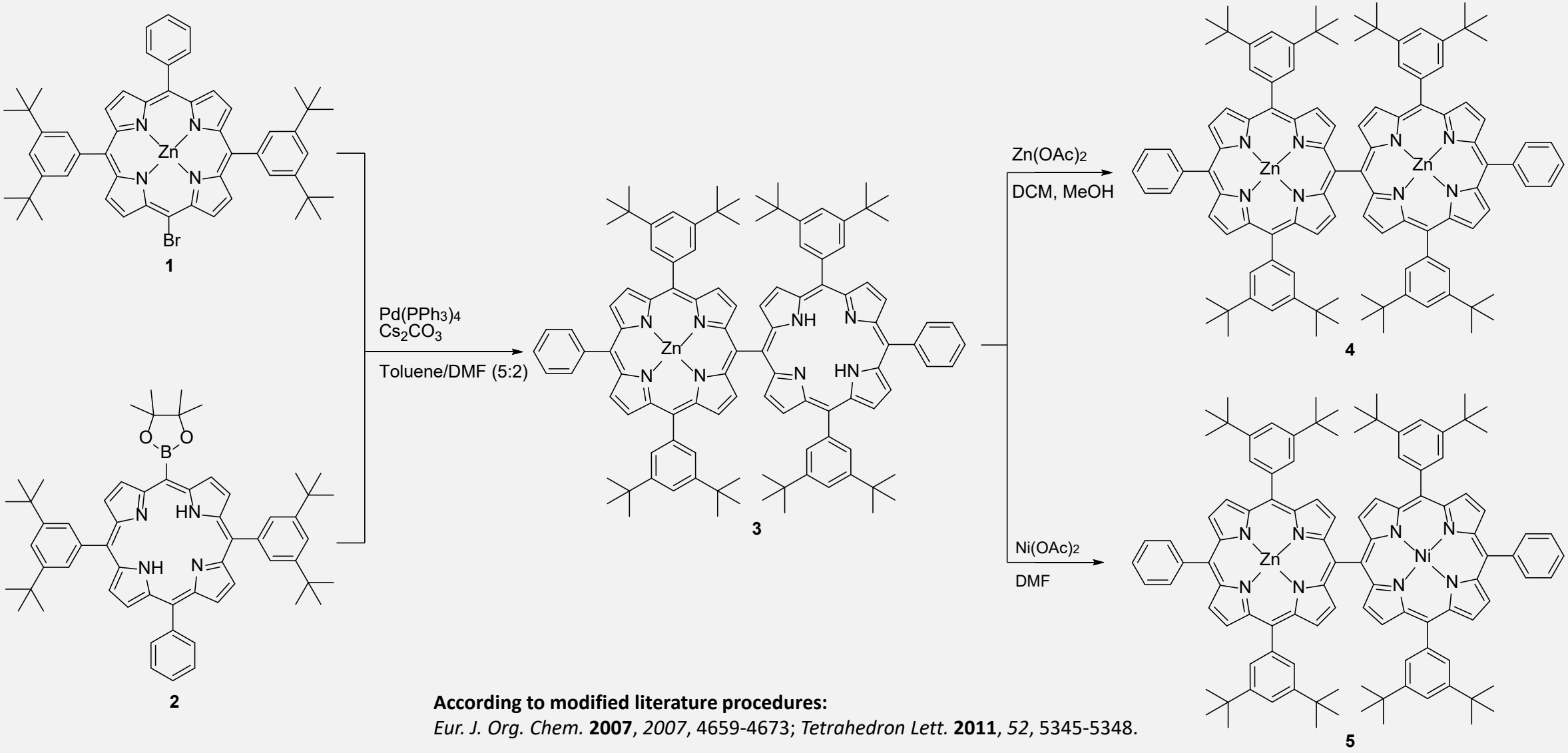


Macro to Nano Spectroscopy, **2012**, ch. *6*, 87-108.

- 2D-Electronic Spectroscopy
  - Behaviour of individual monomer units
  - Intramolecular dynamics

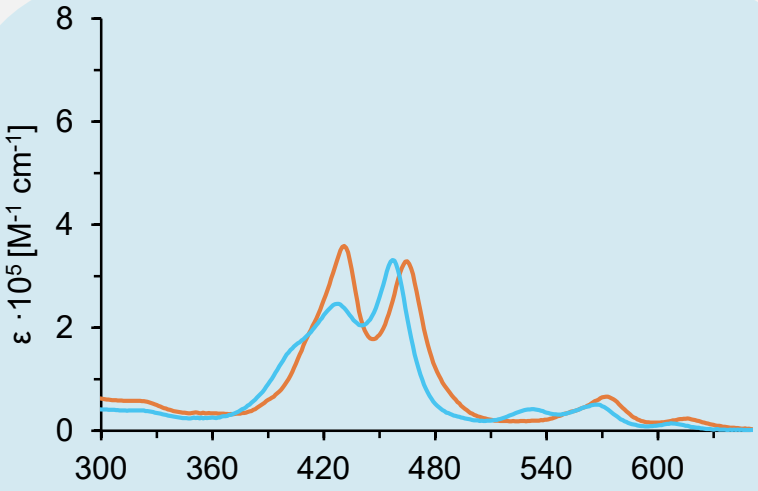
- Porphyrin dyads with different electronic properties
  - Linker
  - Metal ion

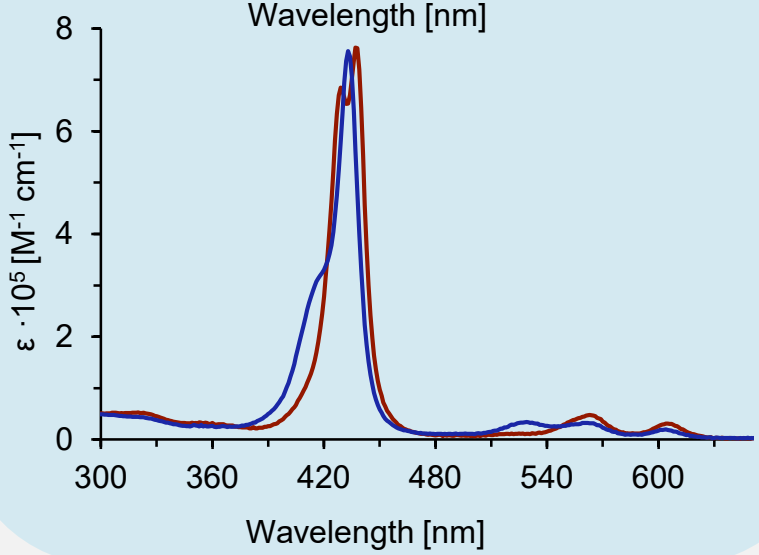
Synthesis – Porphyrin Dyads



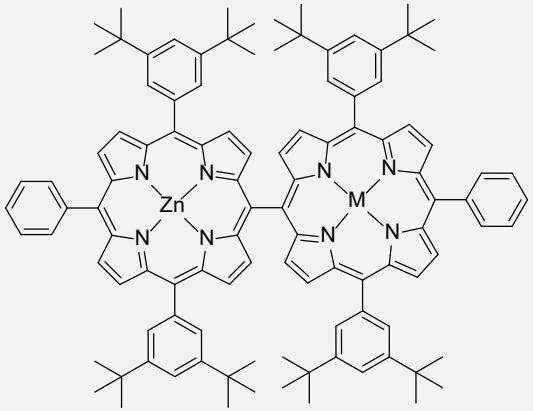
According to modified literature procedures:
Eur. J. Org. Chem. **2007**, *2007*, 4659-4673; *Tetrahedron Lett.* **2011**, *52*, 5345-5348.

Characterisation – UV-Vis Absorption and Fluorescence Emission Spectroscopy

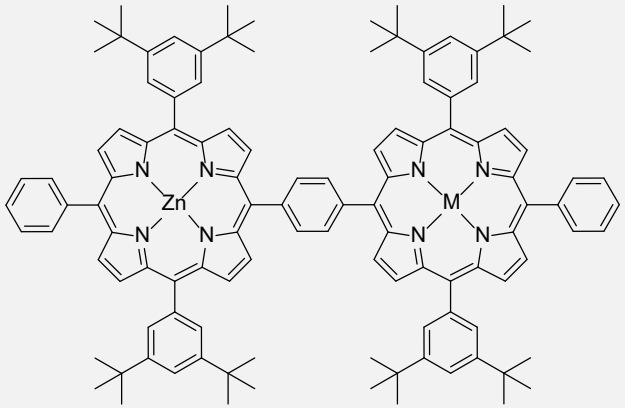




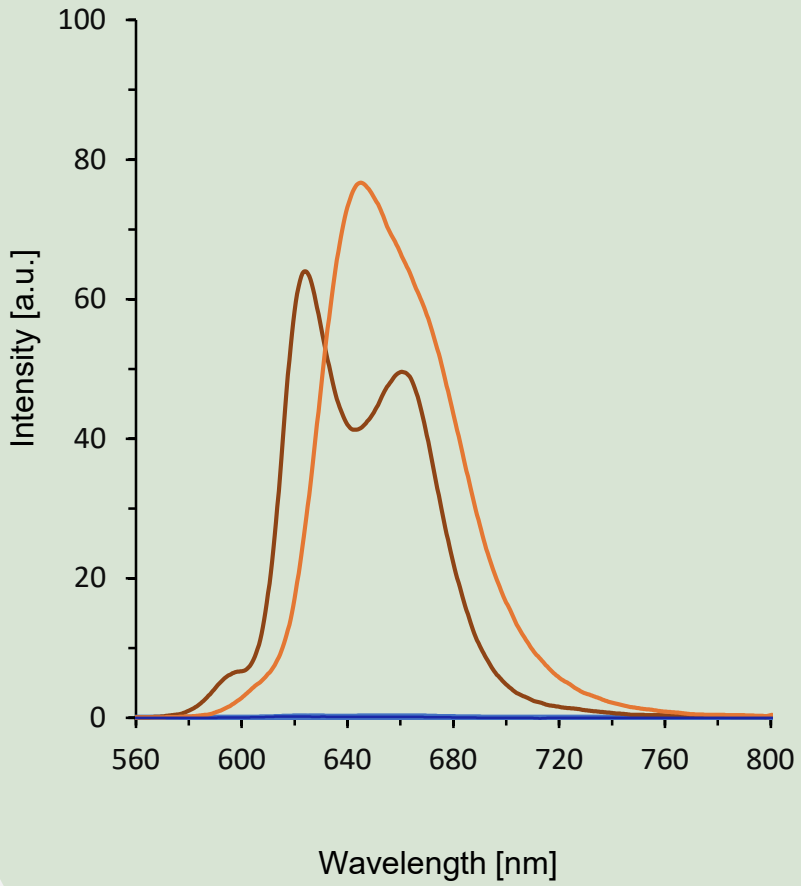
Conditions: Toluene



M: Zn, Ni



M: Zn, Ni



Conditions: Excitation at 432 nm, Toluene

Conclusion & Outlook

- 4 *meso-meso* linked zinc-zinc and zinc-nickel porphyrin dyads were successfully synthesized and characterized.
- Electronic properties of the dyads are affected by insertion of different metal ions and linkers.

- Detailed information on dynamics in ground and excited states of the dyads are going to be studied by 2D-Electronic spectroscopy at EPFL, which allows us to monitor energy transfer processes in the dyads.

Acknowledgments

- Collaborators: Chergui Group (EPFL)