

Molecular factories based on $\{M(2,2':6',2''\text{-terpyridine})_2\}^{2+}$ -zipped co-block polymer vesiclesA. Wiesler¹, C. G. Palivan², A. I. Dinu², E. C. Constable^{1*}, C. E. Housecroft^{1*}¹Department of Chemistry, University of Basel, Spitalstrasse 51, 4056 Basel, Switzerland, ²Department of Chemistry, University of Basel, Klingelbergstrasse 80, 4056 Basel, Switzerland

We show how the chelating power of bis(2,2':6',2''-terpyridine)metal(II) complexes can be applied to 'zip' together co-block polymer vesicles to give pre-organized assemblies.¹ Different approaches have been used to functionalize polymer vesicles which condense with appropriately functionalized 2,2':6',2''-terpyridine (tpy) domains; sequential reaction with metal ions e.g. Fe^{2+} leads to an organized assembly. All reactions are carried out under ambient conditions and in aqueous media. The principle of the procedure is shown in the scheme below:

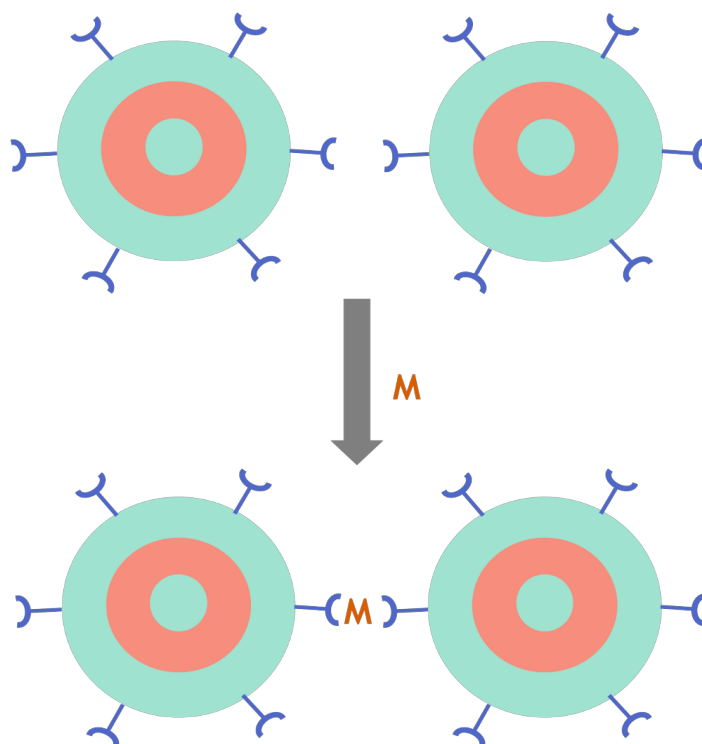


Figure 1: Strategy for assembly of arrays of coupled polymer vesicles.

The characteristic MLCT absorption associated with the $\{\text{Fe}(\text{tpy})_2\}^{2+}$ chromophore is a powerful probe with which to assess the degree of vesicle aggregation. This along with AFM and TEM studies will be discussed.

The ordered structure of the polymer vesicle assembly provides a platform for an array of artificial compartments for a molecular factory. Surface modification is particularly attractive.² Future directions of the work will be discussed, e.g. encapsulation of components of the 'factory' within hollow vesicles and communication between the compartments.

[1] Constable, E.C.; Meier, W.; Nardin, C.; Mundwiler, S. *Chem. Commun.* **1999**, 1483 – 1484

[2] Langowska, K.; Kowal, J.; Palivan, C.G.; Meier, W. *J. Mater. Chem. B* **2014**, 2, 4684.