

Abstract:

Topic:

Studies of the efficient synthesis of bridged and functionalized U- and S-shaped terpyridines:

A wide range of substituted U-shaped terpyridines has been synthesized in an efficient one-pot procedure[1]. Using 5,6,7,8-tetrahydroquinolinone, ternary iminium salts and NH_4OAc U- and S-shaped terpyridines can be formed. One goal was the synthesis of aromatic dialdehydes to form bridged bis(U-terpyridines). Regarding an possible application as molecular wires these ditope terpyridines have been complexed with Ruthenium(II) to study an electronic communication between the two metal centers. Ruthenium terpyridine complexes are of special interest with regard to applications in the fields of optoelectronics, photocatalysis or nanostructured materials.

Beside bis-iminium salts, tris- and tetrakis-iminium salts and their resulting terpyridines have been synthesized. Using these ligands it is possible to build up dendritic structures.

As the substituent of the iminium salts can be chosen from a variety of readily available starting materials a wide range of functionalized U- and S-shaped terpyridines have been synthesized. Among these substituents are thiophene-, diphenylketone-, alkyloxy-, halogen-, salicylic acid-, phenol-groups. One of the central substances of the terpyridine synthesis is 5,6,7,8-tetrahydroquinolinone. Its starting materials, the quinolines, have been synthesized. They are very interesting C^N-ligands in Ir(III)-complexes and can be used to build up phosphorescent polymer LEDs.