

# Synthesis and Structure of the Helicate (M)-(-)-[Pt<sub>2</sub>{(R,R)-tetraphos}<sub>2</sub>](CF<sub>3</sub>SO<sub>3</sub>)<sub>4</sub> · 4.5 H<sub>2</sub>O

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*Dedicated to Professor Hubert Schmidbaur on the occasion of his 70<sup>th</sup> birthday*

The complex (M)-(-)-[Pt<sub>2</sub>{(R,R)-tetraphos}<sub>2</sub>](CF<sub>3</sub>SO<sub>3</sub>)<sub>4</sub> · 4.5 H<sub>2</sub>O, where tetraphos = 1,1,4,7,10,10-hexaphenyl-1,4,7,10-tetraphosphadecane, has been isolated and structurally characterized. The compound crystallizes in the space group *C*2 with two crystallographically different, but very similar, cations in the structure, each of which contains a 2-fold axis coincident with the crystallographic 2-fold axis. Each independent cation of the salt consists of a double-stranded, diplatinum(II) helicate that completes a *ca.* one-eighth turn of a double  $\alpha$ -helix in the *M* direction, as evidenced by the angle between the two, non-orthogonal PtP<sub>4</sub> square planes in each of the independent molecules. A feature of the structures is the 10-membered ring containing the two platinum atoms and the four chiral phosphorus stereocentres of *R* configuration; this ring has a distorted twist-boat–chair–boat conformation of  $\lambda$  helicity, which is responsible for the *M* twist of the helicate.

*Key words:* Platinum Complex, Tetraphosphine, Helicate