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CHIROPTICAL PROPERTIES OF ENANTIOPURE CRYPTOPHANES

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Cryptophane is the common name for hollow macrocyclic compounds first studied by Collet and his collaborators.^[1] Interestingly, these molecules can encapsulate a wide range of substrates (cations, anions, small molecules) in organic or aqueous solvents, depending on the substituents grafted onto the cryptophane backbone.^[2] The vast majority of cryptophanes are also chiral compounds.^[3] Thus, chiroptical techniques are valuable tools for characterizing these molecules.^[4-5] In this presentation, we will give an overview of the chiroptical techniques (ECD, VCD, ROA, X-ray, Polarimetry) used to characterize cryptophane derivatives. Through several examples, we will show how chiroptical techniques can be used to determine the absolute configuration of cryptophanes, as well as providing valuable information on the conformation of the three linkers. Particular attention will be paid to Vibrational Circular Dichroism (VCD) and Raman Optical Activity (ROA) techniques.

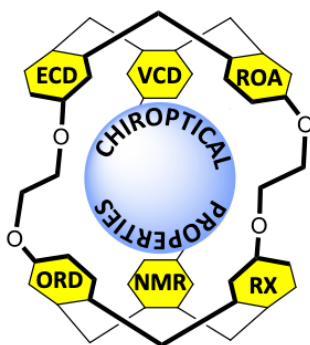


Figure. Schematic representation of a cryptophane skeleton with the names of the various chiroptical techniques used to characterize these compounds.

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