**SINGLE CRYSTAL X-RAY DIFFRACTION CRYSTALLOGRAPHY IN STRUCTURE CHARACTERIZATION OF COORDINATION COMPLEXES**

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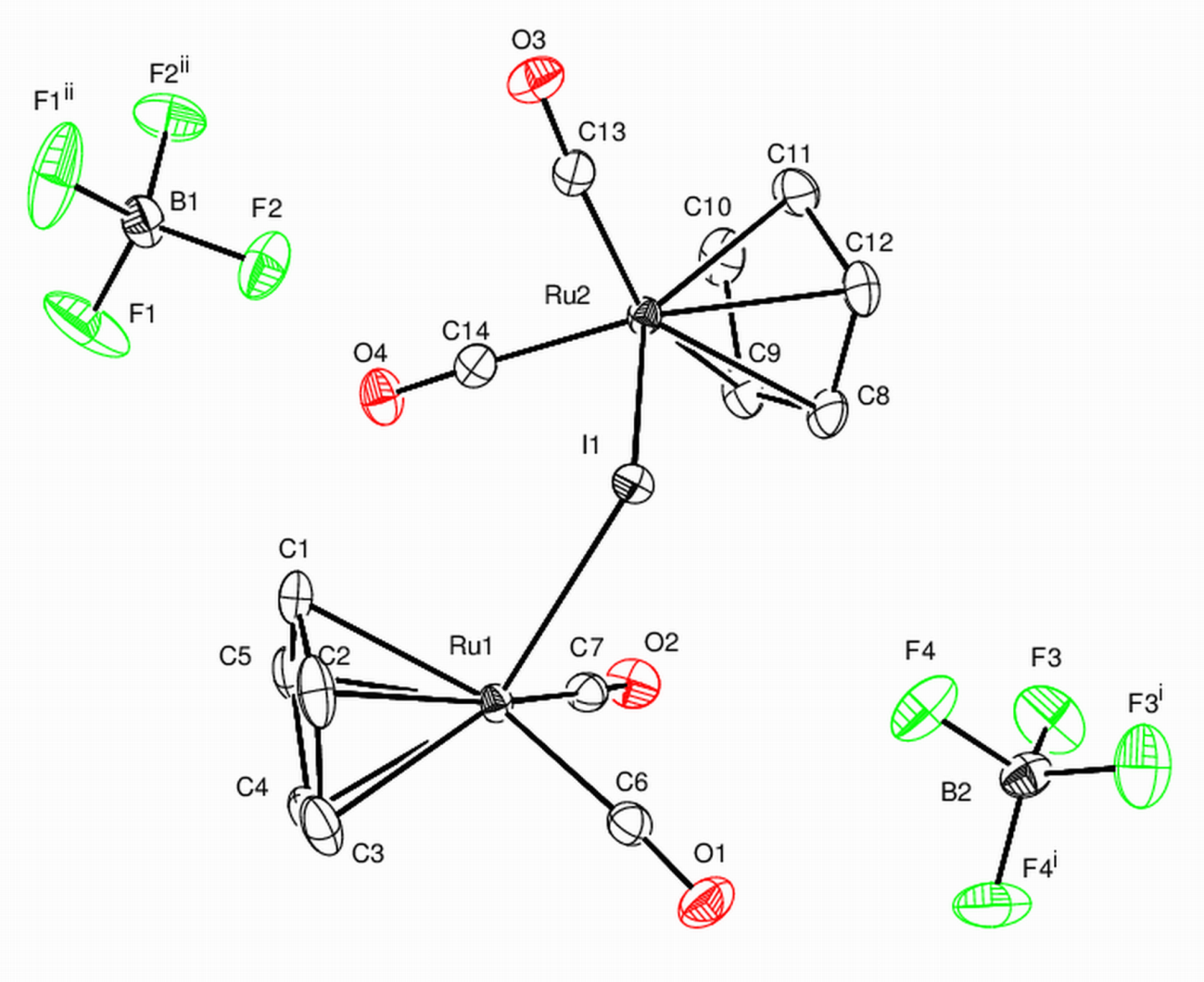
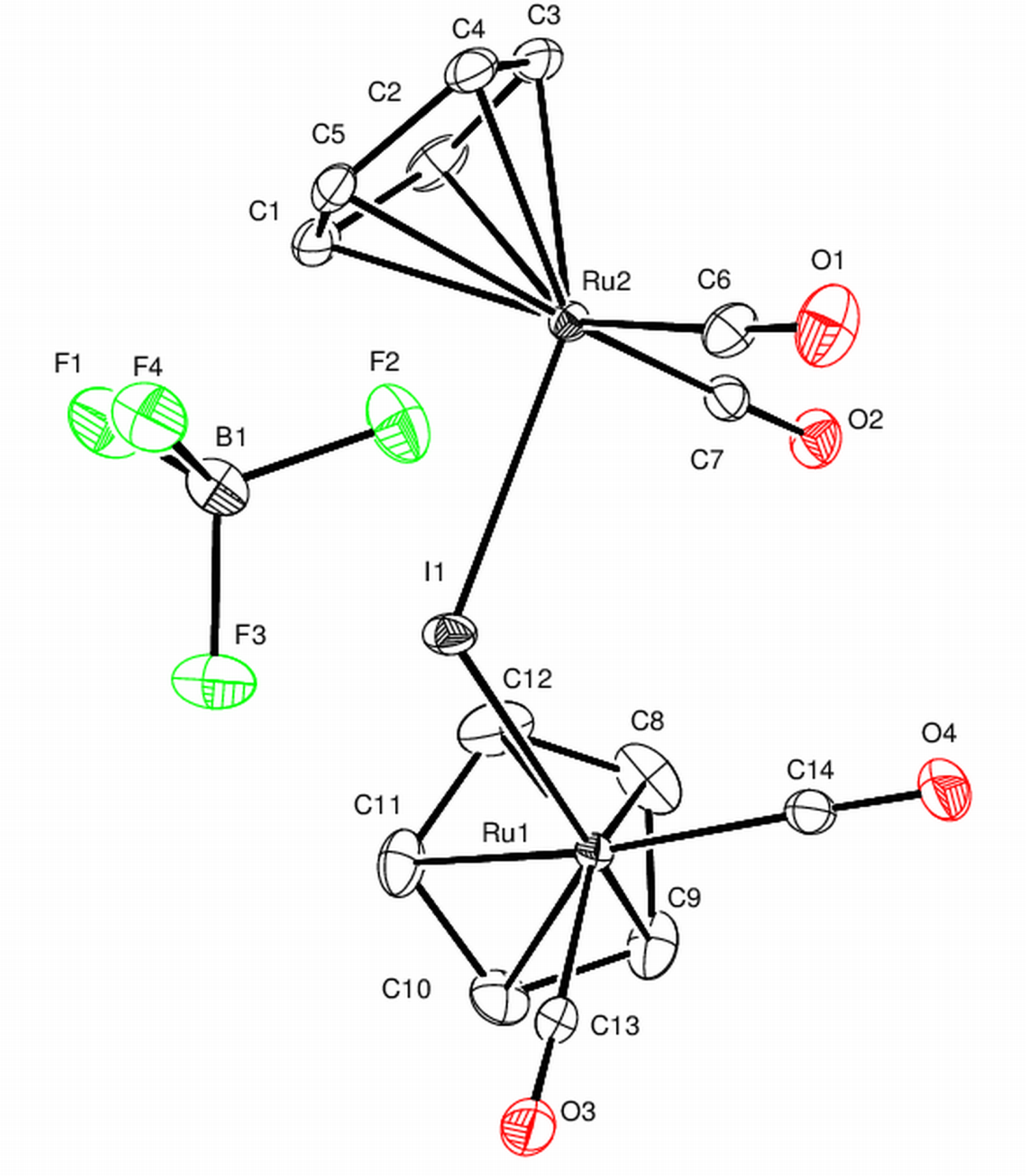
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**Abstract**

Coordination complexes find a wide range of applications in nature as biocatalysts; in industry as catalysts for many organic syntheses; and in medicine for tumor diagnosis and therapy, and antimicrobial agents. There is therefore great interest in research on ruthenium metal coordination complexes and their possible application in the mentioned area and more. Although synthesized coordination complexes can be characterized by a series of techniques such as FTIR, 1H and 13C NMR, mass spectrometry, elemental analysis, melting point and thermal analysis, Single-crystal X-ray Diffraction technique is very useful in confirming their synthesis and purity. Single-crystal X-ray Diffraction, a straight forward non-destructive technique, has been used to directly visualize the precise and detailed structural information of coordination complexes. A review on the Single-crystal X-ray Diffraction data reported for a series of η5-cyclopentadienylruthenium(II) complex salts will be presented at the ePCCr conference. Some of the ruthenium(II) complex salts include [{(η5-C5H5)Ru(CO)2}2I]BF4, [CpRu(CO)2NH2R]+BF4- (Cp = η5-C5H5 (R = CH3, C2H5, C3H7, C4H9,C5H11 and C6H13), [Cp\*Ru(CO)2NH2(CH2)nCH3]BF4 (Cp\* = η5-C5(CH3)5; n = 0, 1, 2, 3 and 4), [Rp2NH2(CH2)nNH2]Y2 (Rp = CpRu(CO)2 where Cp = η5-C5H5; n = 2, 3, 4 and 6; Y = BF4 or SO3CF3) and [CpRu(CO)2NH2R]BF4 (Cp = η5-C5H5; R = C6H11, C6H5, CH2C6H5, CH(CH3)C6H5, CH2C6H4OCH3, CH2C6H4CN, C6H2(CH3)3), CH2CHCH2 and CH(CH3)2).

**Graphical abstract**

Molecular structures of two polymorphs of ruthenium(I)tetracarbonylbis(η5-cyclopentadienyl)-µ-iodido tetrafluoroborate showing the atomic numbering scheme. Displacement ellipsoids are drawn at the 50% probability level and H atoms are not shown

**References**

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