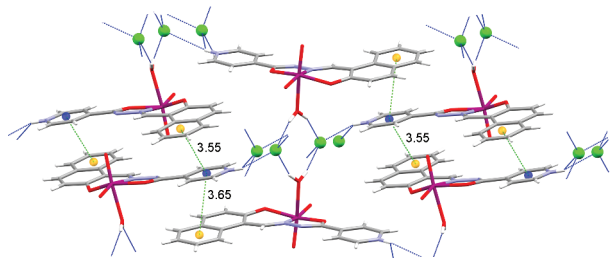


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**Figure 1.** Layers of complex ions in 2a. Hydrogen bonds are shown by blue dotted lines and  $\pi\cdots\pi$  interactions by green dashed lines. The distance between centroids is given in Å.

**Keywords:** dioxomolybdenum(VI) complexes, deprotonation, structural studies, hidrazones

## MS30-P2 Oxo-bridged dinuclearCr<sup>III</sup>-Ta<sup>V</sup> complex: structural and spectroscopic characterization

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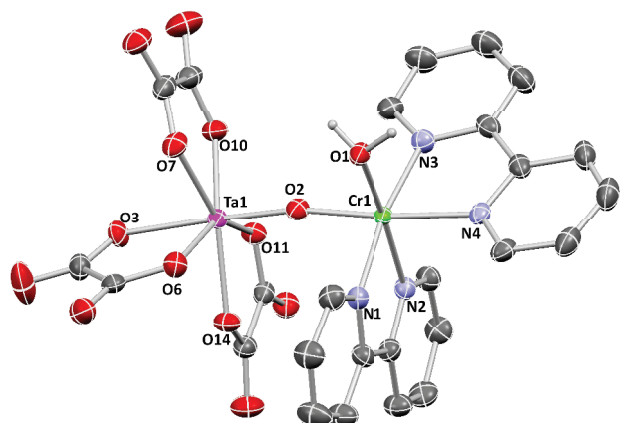
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The oxo-bridged metal units are interesting intramolecular motifs appearing in several bioinorganic molecules such as metalloproteins (Fe–O–Fe core) and in various inorganic systems, especially as polyoxometallates, materials with outstanding properties and functions.[1,2] Recently, unusual behaviour that causes the changes in material color and magnetic properties has been observed in structures with Cr–O–Cr bridges, referred as metal-to-metal-charge transfer (MMCT).[3] Even though there are several reports of light- and heat-induced MMCT, the occurrence of this intriguing phenomena is hard to predict and the relationship between electron transfer and molecular structure is not yet understood.[4]

In the recent years our research group has been involved in intensive studies related to tris(oxalato)oxotantalate(V) anion, with the aim of obtaining new metal-organic coordination systems with specific (electrical, optical, catalytic and/or magnetic) properties. It was found that this type of anion is prone to form heterometallic complexes with different topologies and nuclearities.[5] Depending on reaction conditions and reagents, the oxo group in  $[\text{TaO}(\text{C}_2\text{O}_4)_3]^{3-}$  can be protonated or replaced with other ligand in the coordination sphere of tantalum.[6] Reaction of water solutions of complex  $[\text{Cr}(\text{bpy})_2(\text{OH}_2)]^{3+}$  cations and  $[\text{TaO}(\text{C}_2\text{O}_4)_3]^{3-}$  anions yielded compound with new bonding topology of this anion – dinuclear oxo-bridged complex  $[\text{Cr}(\text{bpy})_2(\text{OH}_2)(\mu\text{-O})\text{Ta}(\text{C}_2\text{O}_4)_3] \cdot 7\text{H}_2\text{O}$  (**1**) (bpy = 2,2'-bipyridine). Compound **1** was characterized by single-crystal X-ray diffraction, IR and UV/Vis spectroscopy. Figure 1 shows dinuclear  $[\text{Cr}(\text{bpy})_2(\text{OH}_2)(\mu\text{-O})\text{Ta}(\text{C}_2\text{O}_4)_3]$  unit, with chromium in octahedral geometry and tantalum in distorted pentagonal bipyramidal geometry. Single crystal measurements at room temperature and at 100 K have shown some differences in the unit cell parameters, as well as in the M–(O, N) bond lengths, which may indicate the change of oxidation state of metal centres. Further magnetic and MMCT studies of **1** are in progress.

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**Figure 1.** Dinuclear Cr<sup>III</sup>-Ta<sup>V</sup> unit in compound [Cr(bpy)<sub>3</sub>(OH)<sub>2</sub>(μ-O)Ta(C<sub>2</sub>O<sub>4</sub>)<sub>2</sub>]<sub>2</sub>·7H<sub>2</sub>O (100 K) showing displacement ellipsoids at 50% probability. Hydrogen atoms on coordinated water molecule are depicted as spheres of arbitrary radii and those on the aromatic rings are omitted for clarity.

**Keywords:** oxo-bridged complex, tantalum, chromium, metal-to-metal charge transfer

### MS30-P3 Crystal structure determination of four new copper (II) complexes containing *ono* type Schiff base ligands

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Schiff base ligands are considered as ‘privileged ligands’ because they are easily prepared by condensation between aldehydes and primary amines. These ligands are able to coordinate many different metals and to stabilize them in various oxidation states. The chemistry of transition metal complexes with Schiff bases has played an important role in the development of coordination chemistry as a whole. Multidentate Schiff bases have been widely used as ligands, because they can be easily attached to metal ions due to the formation of highly stable coordination compounds. These complexes show a large variety of catalytic, biological, antifungal, anti tumor and anti HIV activities [1].

In the present study, we were interested in the investigation of four new copper(II) complexes synthesized by tridentate Schiff base ligand, have different coordination environments. Single-crystal X-ray data were collected on an Agilent Diffraction Xcalibur diffractometer equipped with an Eos-CCD detector. Data analysis were carried out with the CrysAlis program [2]. Structures were solved by SHELXS-97 and olex2.solve, refined by means of SHELXL-97 programs [3] incorporated in the OLEX2 program package [4].

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**Keywords:** Cu(II) Complex, Schiff Base, Crystal structure