GEOMETRICAL ISOMERIM IN Ru_2Au HETEROMETAL ASSEMBLY: *CIS*-LINKING OF TETRACYANIDOAURATE TO TETRAKIS(*μ-n*-BUTYRATO)DIRUTHENIUM

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Abstract. A heterometal assembled complex of tetrakis(*μ-n*-butyrato)diruthenium(II,III) and tetracyanidoaurate(III) $[Ru^{II}Ru^{III}(n\text{-}C_3H_7COO)_4Au^{III}(CN)_4]_n$ was synthesized and characterized by the elemental analysis and infrared spectroscopy. The single-crystal X-ray structure analysis revealed that the complex consists of zigzag chain molecules of alternating arrangement of the $Ru_2(RCOO)_4^+$ and $Au(CN)_4^-$ units with *cis*-bridging mode of the $Au(CN)_4^-$ units. The temperature dependence of the magnetic susceptibility data (4.5—300 K) showed that the magnetic interaction between the dinuclear $Ru^{II}Ru^{III}$ units (S = 3/2) is negligibly small with a zero-field splitting parameter D value of 60 cm^{-1}.

Keywords: dinuclear ruthenium carboxylate, tetracyanidoaurate, heterometal complex, X-ray crystallography, magnetic property.