

## GEOMETRICAL ISOMERISM IN Ru<sub>2</sub>Au HETEROMETAL ASSEMBLY: CIS-LINKING OF TETRACYANIDOAUROATE TO TETRAKIS( $\mu$ -BUTANOATO)DIRUTHENIUM

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**Abstract.** A heterometal assembled complex of tetrakis( $\mu$ -butanoato)diruthenium(II,III) and tetracyanidoaurate(III) [Ru<sup>II</sup>Ru<sup>III</sup>( $n$ -C<sub>3</sub>H<sub>7</sub>COO)<sub>4</sub>Au<sup>III</sup>(CN)<sub>4</sub>]<sub>*n*</sub> 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<sub>2</sub>( $n$ -C<sub>3</sub>H<sub>7</sub>COO)<sub>4</sub><sup>+</sup> and Au(CN)<sub>4</sub><sup>-</sup> units with *cis*-bridging mode of the Au(CN)<sub>4</sub><sup>-</sup> units. The temperature dependence of the magnetic susceptibility data (4.5–300 K) showed that the magnetic interaction between the dinuclear Ru<sup>II</sup>Ru<sup>III</sup> units ( $S = 3/2$ ) is negligibly small with a zero-field splitting parameter  $D$  value of 60 cm<sup>-1</sup>.

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

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