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**Syntheses, structures and properties of magnetically active copper(II) compounds  
with 3-amino-5-(4-methylphenyl)isoxazole**

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**Abstract.** Novel copper(II) coordination compounds with 3-amino-5-(4-methylphenyl)isoxazole (**L**) such as [CuL<sub>4</sub>Cl]Cl (**I**), [CuL<sub>4</sub>(NO<sub>3</sub>)<sub>2</sub>] (**II**) and [CuL<sub>3</sub>SO<sub>4</sub>] (**III**), have been synthesized. The compounds have been investigated by means of single-crystal X-ray diffraction, UV-Vis and IR spectroscopy, and static magnetic susceptibility measurements. The exchange interactions between unpaired electrons in copper(II) exhibit different character depending on the composition of the complexes.

Keywords: synthesis, complex, copper(II), isoxazole, magnetochemistry, spectroscopy.

## Introduction

Isoxazole derivatives are efficiently used in the targeted synthesis of various types of organic compounds. The isoxazole heterocycle is a molecular fragment of a large number of cytostatic agents, anticonvulsants, pesticides and other bioactive substances [1-4]. A high synthetic potential of substituted isoxazoles and a wide range of biological activity thereof promote a strong interest in chemistry of isoxazoles and in the synthesis of novel representatives of this class of substances [5-9].

The coordination between metals and isoxazole has been studied to a sufficient extent. In one of the first studies, M(II) tetrafluoroborate and perchlorate complexes with unsubstituted isoxazole (**Iz**), such as M(Iz)<sub>6</sub>(BF<sub>4</sub>)<sub>2</sub> (M = Mn(II), Fe(II), Co(II), Cd(II)), Fe(Iz)<sub>6</sub>(ClO<sub>4</sub>)<sub>2</sub> and Cu(Iz)<sub>4</sub>(BF<sub>4</sub>)<sub>2</sub>,

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