## Specialization: 010700/03 Condensed Matter Physics

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**Photo-induced adsorboluminescence of aluminum magnesium spinel.**

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The paper presents the results of a study of fluorescent properties of the magnesium-aluminum spinel MgAl2O4 crystalline powder. This study was a logical continuation of research the phenomenon of photoinduced adsorboluminescence zinc orthosilicate doped with a manganese.

In the theoretical part of this work were reviewed sources devoted to studying of thermoluminescence and photoluminescence of this oxide. In the experimental part of the research were obtained three sorts of spectra for the magnesium-aluminum spinel MgAl2O4: the thermally stimulated and photostimulated luminescence spectra; photoinduced adsorboluminescence spectra related to adsorption of hydrogen. The kinetics of these processes was investigated. The paper represents subsequent results:

1. comparative study of the spectral photoinduced adsorboluminescence, photostimulated luminescence and thermoluminescence;
2. studies of the effect of photostimulated adsorption of donor and acceptor molecules on the photoinduced adsorboluminescence and the thermally-stimulated luminescence;
3. comparative spectral-kinetic measurements of the photoinduced adsorboluminescence and thermally stimulated luminescence.

In the study, was shown a coincidence between the photoinduced adsorboluminescence and the photostimulated luminescence spectral characteristics of aluminum-magnesium spinel. The influence of oxygen photoadsorption on photoinduced adsorboluminescence emission intensity was determined, specifically significant increase of intensity.

The list of the publications

1. Timoshenko A. “Photoinduced Adsorboluminescence in Mn:Zn2SiO4 phosphor”, International Student Conference "Science and Progress“, St. Petersburg, Conference Abstracts, p. 125 (2011).