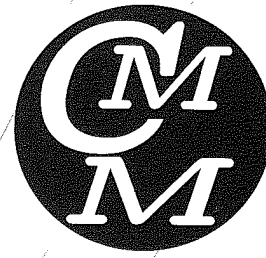


Mathematical Society of  
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Union of Mathematicians  
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MASSE  
International Congress on Mathematics  
MICOM 2009

**BOOK OF ABSTRACTS**

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In the past church bells as well as other types of bells were used for dissemination of information for solemn or mourning events. Unfortunately during the centuries many bells were melted to cast cannons and so were lost as object of art and cultural heritage.

The aim of the "Research and Identification of Unique Bells as a part of the Historic and Cultural Heritage of Bulgaria and Development of Audio and Video Archive using Advanced Technologies" project was to develop an archive containing detailed description of church bells. So, in case that unexpected circumstances destroy a bell, the archive will keep the specific details to be investigated by different specialists.

As an object of cultural heritage the bell has general properties such as geometric dimensions, weight, etc. But its specific property is the sound. Thus, the archive contains also records of the sound of each of the bells, the pitch of the tone as well as acoustical diagrams obtained using contemporary equipment.

The audio and video archive is developed by using advanced technologies for analysis, reservation and data protection.

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## **A GENERALIZATION OF THE STONE DUALITY THEOREM**

G.Dimov

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A category which is dual to the category of locally compact zero-dimensional Hausdorff spaces and continuous maps is desired. Two categories which are dual to the category of local compact zero-dimensional Hausdorff spaces and perfect maps are found as well.

## **ABOUT THE SOLUTION OF A LINEAR DIFFERENTIAL EQUATION OF THIRD DEGREE WITH FUNCTIONAL COEFFICIENTS**

Lazo Dimov

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In this work we discuss the following linear differential equation of third degree

$$f(x)y''' + g(x)y'' + h(x)y' + r(x)y = 0,$$

and we transform it under certain circumstances in a differential equation with constant coefficients (1), and then according to the sign of the figuration equations we determine its solution with the formulas (2).

## **ANALYSIS OF BEHAVIOUR FOR LORENZ SYSTEM**

Donco Dimovski<sup>1</sup>, Biljana Zlatanovska<sup>2</sup>

In this paper, we will consider the behavior of the solution  $x(t)$  as the part of the general solution for Lorenz system. The Lorenz system is nonlinear system of differential equations, with of tree parameters  $\sigma, r, b$ . Via numerical solutions, using Mathematica, we will give a graphic presentation for the behavior of the solution.