## A LOOK AT THE ADAPTIVE HOPF OSCILLATORS: AN OVERVIEW (WEB PLATFORM UPGRADE)

Maria Vasileva, Vesselin Kyurkchiev, Anna Malinova, Anton Iliev, Asen Rahnev, Nikolay Kyurkchiev

Abstract. In this article we demonstrate some specialized modules for investigating the dynamics of some generalized Hopf oscillators, an integral part of a planned much more general Web-based application for scientific computing. We also study some new hypothetical adaptive Hopf-like oscillators. Numerical examples, illustrating our results using CAS MATHEMATICA are given.

**Key words:** Adaptive Hopf oscillator, Three-state Hopf oscillator, Four-state Hopf oscillator, Modified Hopf oscillator.

Mathematics Subject Classification: 65L07, 34A34

## Acknowledgments

This study is financed by the project No FP23-FMI-002 "Intelligent software tools and applications in research in Mathematics, Informatics, and Pedagogy of Education" of the Scientific Fund of the Paisii Hilendarski University of Plovdiv, Bulgaria.

Maria Vasileva<sup>1</sup>, Vesselin Kyurkchiev<sup>2</sup>, Anna Malinova<sup>3</sup>, Anton Iliev<sup>4,\*</sup>, Asen Rahnev<sup>5</sup>, Nikolay Kyurkchiev<sup>6</sup>
<sup>1,2,3,4,5,6</sup> Faculty of Mathematics and Informatics, University of Plovdiv Paisii Hilendarski,
24, Tzar Asen Str., 4000 Plovdiv, Bulgaria,
<sup>4,6</sup> Institute of Mathematics and Informatics,
Bulgarian Academy of Sciences,
Acad. G. Bonchev Str., Bl. 8, 1113 Sofia, Bulgaria
Corresponding author: aii@uni-plovdiv.bg