

## Fractional calculus in mathematical modeling

Jacek Gulgowski<sup>1</sup>,  
joint work with Tomasz Stefański<sup>2</sup>

<sup>1</sup>*Faculty of Mathematics, Physics and Informatics, University of Gdansk, Wita Stwosza  
57, 80-308 Gdansk, Poland*

<sup>2</sup>*Faculty of Electronics, Telecommunications and Informatics, Gdansk University of  
Technology, Narutowicza 11/12, 80-233 Gdansk, Poland*

The concepts of fractional order integral and derivative appeared in mathematics centuries ago. The history of applications of these concepts to other sciences is much shorter but is gaining more and more attention in recent decades. We are going to present some examples showing what stepping from integral-order to fractional-order models does to mathematical models.