MARIE SKŁODOWSKA-CURIE POSTDOCTORAL FELLOWSHIPS 2023

EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

CICS.NOVA

RESEARCH GROUP AND URL

Education, Knowledge and Culture

SUPERVISOR (NAME AND E-MAIL)

Helena Rocha, hcr@fct.unl.pt

SHORT CV OF THE SUPERVISOR

Helena Rocha is a professor in the Mathematics Department of the Faculty of Science and Technology of the NOVA University of Lisbon (FCT NOVA) and member of the research center CICS.NOVA, with a degree in Mathematics from the Faculty of Sciences of the University of Lisbon and a PhD in Education, in the area of Didactics of Mathematics, from the Institute of Education of the University of Lisbon.
Her research interests are centered on the mathematics teacher, with a special focus on knowledge and professional development in the context of technology integration. In this context, she leads the TecTeachers project, which focuses on professional knowledge to teach with technology. Author of several book chapters and articles published in national and international journals; she is currently coordinator of the Master's in Mathematics Teaching; associate director of journal Quadrante; member of the editorial board of the journal Research in Mathematics Education; and editor of the journal Education and Mathematics, where she is also responsible for a section devoted to games in Mathematics Education.

5 SELECTED PUBLICATIONS

- Rocha, H. (2023). Analyzing teachers' knowledge based on their approach to the information provided by technology. *European Journal of Science and Mathematics Education, 11*(1), 132-145. https://doi.org/10.30935/scimath/12522
- Faggiano, E., Rocha, H., Sacristan, A., & Santacruz-Rodríguez, M. (2021). Towards pragmatic theories to underpin the design of teacher professional development concerning technology use in school mathematics. In A. Clark-Wilson, A. Donevska-Todorova, E. Faggiano, J. Trgalova & H-G. Weigand (Eds.) *Mathematics Education in the Digital Age: Learning, Practice and Theory* (pp. 42-68). Oxford, UK: Routledge.
- Rocha, H. (2020). Using tasks to develop pre-service teachers' knowledge for teaching mathematics with digital technology. *ZDM Mathematics Education*, 52(7), 1381-1396. https://doi.org/10.1007/s11858-020-01195-1
- Rocha, H. (2020). Graphical representation of functions using technology: a window to teacher knowledge. *Teaching Mathematics and its Applications, 39*(2), 105-126. https://doi.org/10.1093/teamat/hrz011
- Viseu, F. & Rocha, H. (2020). Interdisciplinary technological approaches from a mathematics education point of view. In L. Leite, E. Oldham, A. Afonso, F. Viseu, L. Dourado, & H. Martinho (Eds.), *Science and mathematics education for 21st century citizens: challenges and ways forward* (pp. 209-229). New York, USA: Nova Science Publishers.

PROJECT TITLE AND SHORT DESCRIPTION

Teachers' STEM knowledge

STEM approach has been assumed as having the potential to promote students learning and an integrated development of skills. However, the implementation of this approach has proved to be complex and

challenging for the teachers. Several factors have been pointed as the cause for the difficulties identified. Some factors are related to the structure of the school, organized in a disciplinary way, but some other factors are related to the teachers and their professional knowledge. The goal of this project would be to study and characterize the teachers' knowledge required to teach in a STEM approach.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST*

Social Sciences and Humanities (SOC)

***Scientific Area where the project fits best** – Please select/indicate the scientific area according to the panel evaluation areas: Chemistry (CHE) • Social Sciences and Humanities (SOC) • Economic Sciences (ECO) • Information Science and Engineering (ENG) • Environment and Geosciences (ENV) • Life Sciences (LIF) • Mathematics (MAT) • Physics (PHY)