



MARIE SKŁODOWSKA-CURIE POSTDOCTORAL FELLOWSHIPS 2024

EXPRESSION OF INTEREST FOR HOSTING MARIE CURIE FELLOWS

HOST INSTITUTION

Faculdade de Ciências e Tecnologias, Universidade Nova de Lisboa

RESEARCH GROUP AND URL

Algebra and Logic

SUPERVISOR (NAME AND E-MAIL)

Reinhard Kahle kahle@fct.unl.pt

SHORT CV OF THE SUPERVISOR

1997 PhD; 2003-08 Prof. Math. Univ Coimbra; since 2008 Prof. Math. Univ. Nova de Lisboa (since 2018 as Prof. Cat.); since 2019 also Prof. Hist. Phil. Sci. Univ. Tübingen

5 SELECTED PUBLICATIONS

- Klaus Mainzer and Reinhard Kahle, Limits of AI theoretical, practical, ethical. Springer, 2024.
- Ugo Dal Lago, Reinhard Kahle, and Isabel Oitavem. Implicit Recursion-Theoretic Characterizations of Counting Classes. Archive for Mathematical Logic, 61:1129-1144, 2022.
- Paulo Guilherme Santos and Reinhard Kahle. Variants of Kreisel's conjecture on a new notion of provability. Bulletin of Symbolic Logic, 27(4):337-350, 2021.
- Reinhard Kahle: Is there a "Hilbert Thesis"?. Studia Logica, 107(1):145-165, 2019.
- Reinhard Kahle: The Logical Cone. IfCoLog Journal of Logics and their Applications, 4(4):1087-1101, 2017.

PROJECT TITLE AND SHORT DESCRIPTION

Applicative Theories and Complexity Classes. Applicative Theories are a formal framework which is quite flexible with respect to syntactic expressibility. Together with its second order extension, called "Explicit Mathematics", it has proven useful for proof-theoretic investigations on in the predicative, metapredicative and impredicative realm of Mathematics. There are also important results concerning classes of computational complexity characterized by Applicative Theories. However, there are some obstacles to characterize classes not (known) to be closed under composition. The project aims to analyze and overcome these obstacles.

SCIENTIFIC AREA WHERE THE PROJECT FITS BEST*

Mathematics (MAT)

*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)