## Ciências ULisboa

# SEMINÁRIO
## LÓGICA MATEMÁTICA

# 8 de outubro 2024 | 15:00 | sala 6.2.33

# On the alleged failure of Frege's original programme

**Fernando Ferreira** (University of Lisbon)

**CMAFcIO**

**ABSTRACT:**

Frege's programme aimed at grounding mathematics in logic. The programme collapsed because Russell's paradox showed that Frege's framework is inconsistent. Frege, on learning of the paradox, freely conceded its devastating force and, at the same time, tried hurriedly to rescue his programme. To no avail, however. Russell's version of logicism, as well as the more moderns neologicism and/or abstractionism and the recent proposals based on modality, depart in important ways from Frege's original programme. In this talk, we recall that a consistent subtheory of Frege's system is able to interpret full second-order arithmetic. Second-order arithmetic is not all of mathematics (in particular, it does not include set theory) but the development of the programme of Reverse Mathematics has been showing that subsystems of second-order arithmetic are, cumulatively, being able to develop almost all of ordinary mathematics. The reason why the above mentioned subtheory of Frege's system is able to develop full second-order arithmetic is twofold: (1) Frege's logicism succeeds fully within the realm of finite sets; (2) Frege's framework admits impredicative quantifications.

fct Fundação para a Ciência e a Tecnologia