

FREIE UNIVERSITÄT BERLIN
Fachbereich Mathematik und Informatik

Promotionsbüro, Arnimallee 14, 14195 Berlin

DISPUTATION

Donnerstag, 18. Mai 2017, 15.15 Uhr

**Ort: Arnimallee 7, Hinterhaus
Seminarraum SR 140, 14195 Berlin**

Disputation über die Doktorarbeit von

Herrn Phillippo Lappicy Lemos Gomes

Thema der Dissertation:

Einstein constraints: a dynamical approach

Thema der Disputation:

Galois groups and fundamental groups: two sides of the same coin

Die Arbeit wurde unter der Betreuung von **Prof. Dr. B. Fiedler** durchgeführt.

Abstract: Probably the most well known fact of Galois is that he died aged 20 in a duel that happened at the 31 of May of 1832. Two days before his duel, he wrote a letter explaining some of his ideas. Such ideas have flourished and bear the name of Galois theory nowadays, connecting the theory of field and its algebraic extensions to group theory. Among its most notable applications is the proof that polynomial equations of degree 5 or higher cannot be generally solvable by radicals.

On the other hand, in algebraic topology, the concepts of covering spaces and fundamental groups have played a fundamental role in understanding and classifying topological spaces, ever since the Analysis situs of Poincaré in 1895.

After introducing basic concepts of both these theories, we will present Grothendieck's categorical approach from 1960-61: the Galois group and the fundamental group are the same object in a higher abstract framework, and mere examples when the appropriate categories are chosen (field extensions and covering spaces, respectively). We will explore this algebraic point of view and understand its main ideas in examples.

Die Disputation besteht aus dem o. g. Vortrag, danach der Vorstellung der Dissertation einschließlich jeweils anschließenden Aussprachen.

Interessierte werden hiermit herzlich eingeladen

Der Vorsitzende der Promotionskommission

Prof. Dr. B. Fiedler