

## Seminar on Semigroups, Automata and Languages

Friday, February 7, 2025, 11:00 Room TBD

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## PRODUCT OF FORMATIONS AND FITTING CLASSES ON GROUPS AND SOME GENERALISATIONS

In this talk, we will focus on formations and Fitting classes of groups. A *formation of groups* is a class of groups closed under quotients and subdirect products of finite families, while a *Fitting class of groups* is a class of groups closed under normal subgroups and products of two normal subgroups belonging to the class.

In [1], different definitions of the product of classes of groups have been presented, and studied, particularly regarding the preservation of properties as being a formation or a Fitting class.

Furthermore, research has been conducted with the aim of extending these concepts to congruences and languages on groups, leading to the introduction and study of the concepts of formations and Fitting classes of congruences and languages (see, for example, [2], [3], [4]).

This naturally raises the question of what would be a suitable definition for the product of formations or Fitting classes of congruences and languages. In this talk, we will explore this question for groups and discuss possible generalizations to other algebraic structures, such as Clifford semigroups and inverse semigroups.

This is joint work with Gracinda Gomes.

## Referências

- [1] K. Doerk and T. Hawkes (1992) Finite Soluble Groups, Walter de Gruyter.
- [2] G. Gomes and A.-C. Monteiro (2024) Formations and i-Fitting classes of inverse semigroups, congruences and languages, Semigroup Forum.
- [3] Ballester-Bolinches, J.-E. Pin, and X. Soler-Escrivà (2015) Languages associated with saturated formations of groups, Forum Mathematicum, 27(3):1471–1505.

[4] A. Ballester-Bolinches, E. Cosme Llópez, R. Esteban-Romero and J. Rutten (2015) Formations of monoids, congruences, and formal languages. Scientific Annals of Computer Science, 25:171–209.





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