

Words  
and  
Automata  
Research  
Group

## Seminar Announcement

---

### A Hierarchy of Expressive Power for Büchi Automata Over the Reals

Alexi Block Gorman (Université Gustave Eiffel)

Tuesday, May 20th, 2025, 10:45 a.m.

Room 7, Via Archirafi 34, 90123 Palermo

There are compelling and long-established connections between automata theory and mathematical logic, including Büchi automata and the additive group of real numbers. We say a subset  $X$  of the reals is "k-regular" if there is a Büchi automaton that accepts (one of) the base-k representations of every element of  $X$ , and rejects the base-k representations of each element in its complement. In this talk we will discuss the hierarchy of Büchi automata in terms of their expressive power--what other automata can we build from a few basic ones and (most of) the classic automata operations? We will unpack the connection between this question and tools from first-order logic.

For further information:

Gabriele Fici

T 091 238 91130

[gabriele.fici@unipa.it](mailto:gabriele.fici@unipa.it)

*All interested people, in particular students, are invited to participate*