

## MOTIVAZIONE

L'Associazione Italiana di Logica e sue Applicazioni e l'Unione Matematica Italiana hanno bandito l'edizione 2025 del premio dedicato al ricordo di **Franco Montagna**, per una tesi di dottorato su argomenti inerenti la Logica Matematica e le sue applicazioni. Il Premio è riservato a uno/a studioso/a che abbia conseguito il titolo di dottore di ricerca discutendo una tesi di dottorato su argomenti di Logica Matematica nel triennio compreso tra il 1 gennaio 2022 ed il 31 dicembre 2024.

La Commissione, composta da:

- Annalisa Conversano (Massey University)
- Mauro Ferrari (Università dell'Insubria)
- Mai Gehrke (Université Côte d'Azur)
- Martino Lupini (Università di Bologna)
- Giuseppe Metere (Università di Milano)

ha rilevato l'elevata qualità scientifica delle tesi sottomesse per la valutazione. La Commissione ha assegnato, a maggioranza, il premio a **Martina Iannella** (Università di Udine) per la tesi: 'From real-life to very strong axioms. Classification problems in Descriptive Set Theory & regularity properties in Generalized Descriptive Set Theory', supervisor Prof. Alberto Marcone (co-supervisor Prof. Vincenzo Dimonte), con la seguente motivazione:

In Part I, the candidate studies a family of embeddability relations among linear and circular orders. The thesis investigates both their combinatorial structure and descriptive set-theoretic properties, including the associated equivalence relations. In Part II, the results from Part I are applied to knot theory, establishing anticlassification results; the candidate shows that the equivalence relations on linear and circular orders provide lower bounds for the complexity of natural equivalence relations on knots and proper arcs. This Part also addresses the descriptive set theory of natural geometric classification problems and resolves an open question from 2013. Finally, in Part III, the candidate explores generalized descriptive set theory, particularly dealing with problems at singular cardinals of countable cofinality.

The candidate achieves significant results on all topics, demonstrating originality, independence, and strong technical skills.

According to the Prize regulations, the Committee mentions, by majority vote, candidates Salvatore SCAMPERTI and Juan Manuel SANTIAGO SUÀREZ. The thesis of Salvatore SCAMPERTI, titled Walking around quasi-orders on graphs, spaces, and their subsets, defended at the Politecnico di Torino, supervised Prof. Raphaël Carroy and Prof. Luca Motto, addresses topics in descriptive set theory and combinatorics. In particular, it investigates the universality properties of the graph homomorphism relation, the classification of zero-dimensional Polish spaces via the Wadge hierarchy, and suitable generalizations. The candidate obtains solid results across the topics, showing originality, independence, and technical competence. The thesis of Juan Manuel SANTIAGO SUÀREZ, titled 'Infinitary logics and forcing', defended at the Université Paris Cité, supervised by Boban Veličković and Matteo Viale, addresses topics at the intersection of forcing and infinitary logic. It offers substantial contributions to the Boolean-valued model theory of infinitary logics, obtaining appropriate generalizations of foundational notions such as compactness, completeness, interpolation, and omitting types theorems. Moreover, the developed framework is employed to derive deep results and introduce novel forcing tools for infinitary logics. The candidate engages with various relevant topics, showing originality, independence and technical skill.

