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Nota di contenuto	-- Invited Papers. -- The CDSAT Method for Satisfiability Modulo Theories and Assignment: an Exposition. -- Effective second countability in computable analysis. -- Towards a Computational Quantum Logic: An Overview of an Ongoing Research Program. -- Represented spaces of represented spaces. -- Computation with Real Numbers and Continuous-Time Dynamical Systems. -- Proof-Carrying Neuro-Symbolic Code. -- Uniform Functional Interpretations. -- Computable Analysis for Extraction of Certified Programs and its Applications. -- Contributed Papers. -- The existence of primitive recursive structures. -- Space-bounded online Kolmogorov complexity

is additive. -- On learning existentially definable subsets in a computable structure. -- Transfinite structured programming. -- Computability of Real Functions with Oracle Pointer Machines implies Real-Time simulation of Chemical Reaction Networks. -- Computability of Initial Value Problems. -- Full generalized effective reducibility. -- On S-Degrees of some Representations of Irrational Numbers. -- Circuit metaconstruction in logspace for Rice-like complexity lower bounds in ANs and SGRs. -- Binary Expansions of Regular Reals and Reordered Computable Numbers. -- Properties of Range Sets of Continuous Functions in Reverse Mathematics. -- The theory of reachability of trace-pushdown systems. -- A point to set principle for finite-state dimension and relativized equidistribution properties. -- Some structural complexity results for  $\exists \mathbb{R}$ . -- On the computational power of C-random strings. -- Generalized learnability of stochastic principles. -- Computably discrete represented spaces. -- Multidimensional tilings and MSO logic. -- Injectivity of polynomials over finite discrete dynamical systems. -- Weihrauch problems as containers. -- On the reverse mathematics of cut-elimination and determinacy. --  $\mathbb{L}^\omega$ ,  $\mathbb{L}^\omega$ ,  $\mathbb{L}^\omega$ , and Wadge hierarchy. -- Ordinal Invariants of the  $\mathbb{h}$ -Preorder on  $\mathbb{k}$ -Labeled Forests. -- Completeness theorems for modal logic in second-order arithmetic. -- Variants of Solovay reducibility. -- Constructive Analysis of Maximal Ideals in  $\mathbb{Z}[X]$  by the Material Interpretation. -- Alternation-Bounded Semi-Unbounded Fan-in Cascading Circuits and the Complementation Closure Property.

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#### Sommario/riassunto

This book constitutes the refereed proceedings of the 21st Conference on Computability and Logic, CiE 2025, held in Lisbon, Portugal, during July 14–18, 2025. The 27 full papers included in this book were carefully reviewed and selected from 49 submissions. They focus on computability-related science, ranging over mathematics, computer science and applications in various natural and engineering sciences, such as physics and biology, as well as related fields, such as philosophy and history of computing. CiE 2025 had as its motto Crossroads of Computability and Logic: Insights, Inspirations, and Innovations, drawing on the numerous interconnections between computability research and broader logical methodologies, considering both well-established perspectives as well as recent innovations.

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