31st International Conference on DNA Computing and Molecular Programming

DNA 31, August 25–29, 2025, Lyon, France

Edited by

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In memory of Anthony Genot

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Preface

This LIPIcs volume contains the papers that have been accepted to Track A of the 31st International Conference on DNA Computing and Molecular Programming (DNA31), organized by Nicolas Schabanel and his team at École Normale Supérieure de Lyon, France during August 25-29, 2025, under the auspices of the International Society for Nanoscale Science, Computation, and Engineering (ISNSCE).

The DNA conference series aims at providing researchers from the fields of mathematics, computer science, physics, chemistry, biology, and nanotechnology, among others, with a forum to collaboratively address the analysis, design, and synthesis of information-based molecular systems. Papers and presentations were sought in all areas that relate to biomolecular computing including, but not restricted to, algorithms and models of computation for biomolecular systems, computational processes *in vitro* and *in vivo*, molecular switches, gates, devices, and circuits, molecular folding and self-assembly of nanostructures, analysis and theoretical models of laboratory techniques, molecular motors and molecular robotics, information storage, studies of fault-tolerance and error correction, software tools for analysis, simulation, and design, synthetic biology and *in vitro* evolution, and applications in engineering, physics, chemistry, biology, and medicine.

Authors who wished to orally present their work were asked to select one of the two submission tracks: Track A (full paper) or Track B (one-page abstract accompanied with supplementary document). Track B is primarily for those who plan to submit experimental or theoretical results to a journal rather than publish in the conference proceedings. There were 45 submissions for oral presentations (20 to Track A and 25 to Track B), from China, Czechia, Finland, France, Germany, India, Ireland, Israel, Japan, Poland, South Korea, Taiwan, the UK, and the USA. Each of the 45 qualified submissions was reviewed by at least three reviewers, with most reviewed by four or more, and thoroughly discussed by the Program Committee (PC). The committee decided to accept 11 papers for Track A (55%) and 11 submissions for Track B (44%). We also received 63 submissions for Track C (poster), of which 6 were selected as additional short oral presentations.

We warmly thank Barbara Saccà, Kerstin Göpfrich, Masahiro Takinoue, and Olivier Bournez for their intellectually stimulating invited talks and all the authors of the submissions for making DNA 31 successful. Anthony Genot was to be an invited speaker at the conference, and we were deeply saddened to hear of his unexpected passing in April. It is a terrible loss to his many colleagues and to the field as a whole. We are greatly appreciative of the organizing committee having a memorial keynote in honour of Anthony.

As the PC co-chairs, we would like to express our gratitude towards the PC members and the external reviewers for their hard work in reviewing the papers within a tight schedule and for providing insightful and constructive comments in order to keep high standard of the DNA conferences. We would like to thank the editorial staff of Dagstuhl Publishing Team, and in particular Michael Wagner for his guidance and help during the process of publishing this volume. We also greatly appreciate the guidance from Anne Condon, Shinnosuke Seki and Damien Woods during the process of organizing the program. Last but not the least, we are grateful to the Organizing Committee members: Nicolas Schabanel, Chiraz Benamor, Marie Bozo, Gwendal Ducloz, and Laure Savetier.

We are all looking forward to DNA32 at University of Arkansas in the USA.

Josie Schaeffer and Fei Zhang
August 2025

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