

# Preface

Fascinating links between the semantics of concurrent programs and algebraic topology have been discovered and developed since the 1990s, motivated by the hope that each field could enrich the other, by providing new tools and applications. Soon enough, it turned out that this interaction had to evolve into something richer than a simple dictionary: topological spaces were not exactly the right notion (they must be refined in order to incorporate the direction of time). The algorithms for verifying concurrent programs resulting from topological semantics were not easy to invent while achieving reasonable complexity. Today, we think that enough material has been understood to justify a book on the topic. We felt the urge for a coherent, exhaustive, and yet introductory presentation of the subject, so that it can gain a larger audience and constitute a panorama of the current knowledge upon which future developments will be built.

The topic makes it natural to address both computer scientists and mathematicians. We have done our best to write the book with this mixed audience in mind. Except for the last chapters, we have tried to require few prerequisites, while keeping a reasonable size for the text: only a general knowledge of semantics of programming languages is required, as well as basic notions of (algebraic) topology and category theory.

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