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Preface

Mathematical biology makes use of an increasingly sophisticated array of mathematical techniques and ideas, including those from matrix theory and linear algebra. Matrix theory now plays a key role in constructing and analysing a number of models for biological phenomena, and so can lend new insight into those phenomena. Further, techniques from linear algebra are used routinely in facilitating solutions to problems arising in the biological context. Conversely, matrix theory and linear algebra also profit from their interaction with mathematical biology, a subject that provides an ongoing source of important and technically challenging problems and that motivates new directions of inquiry.

This special issue collects a number of papers that lie at the interface of matrix theory and mathematical biology. The themes of matrix stability and entrywise non-negative matrices both emerge prominently in the issue—not surprising in light of the fact that both dynamical systems and nonnegative parameters are encountered frequently in the modelling of biological processes.

The editors believe that the papers in this issue help to illustrate how both matrix theory and mathematical biology can profit from an ongoing cross-disciplinary dialogue. The editors also hope that this special issue will serve to foster and accelerate cross-fertilization between those researchers working primarily in linear algebra and those working primarily in mathematical biology.

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