

Preface

The present book summarizes the work that I have performed in the context of my doctoral dissertation and my subsequent activities at the Quality and Usability Lab, which is jointly run by the University of Technology Berlin and Deutsche Telekom Laboratories. The initial motivation for this work has been the question of how the two best-known methods of sound field synthesis, namely Wave Field Synthesis and Near-field Compensated Higher Order Ambisonics, relate. The answer to this question had been discussed in the research communities for years but a convincing conclusion had not been found. I present in this book a general formulation for the problem of sound field synthesis that allows for identifying above methods as particular solutions so that a juxtaposition is straightforward. Practical applications and synthesis of sound fields with diverse properties are then treated based on the general framework, which further facilitates the interpretation. The website <http://www.soundfieldsynthesis.org> accompanying this book makes available for download MATLAB/Octave scripts for all included simulations so that the reader can perform further investigations without having to start from scratch.

As with any book, the people who deserve acknowledgements are too numerous to list. I therefore mention only those who receive my very special acknowledgements. All others who have contributed to my research work and who are not mentioned here shall be aware of my appreciation.

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