

# Preface

This is a book about fascination. A fascination which had hit me in 1996, when I got a position as student assistant in the workgroup of Prof. Purwins and started to upgrade a numerical solver of two-dimensional reaction-diffusion systems to three spatial dimensions. We were heading for self-organized localized structures of three-component reaction-diffusion systems. Due to their particle-like characteristics, we called them quasi-particles and later on renamed them to dissipative solitons. The simulations and theoretical investigations surprised us again and again with complexity on the one hand and general mechanisms on the other, such that we were heading for detecting them experimentally, which finally succeeded.

After finishing my doctoral thesis on this topic, the fascination did not seem to falter and I was very happy that my proposition for a book on *Dissipative Solitons in Reaction-Diffusion Systems* to appear in Springer's Synergetics Series was accepted. I have always been inspired by books in this field through my studies, so it is a great honor for me to contribute to this series.

The central idea of this book is to give an overview, introduce important concepts and methods, and follow them, wherever possible, down to concrete results, both numerically and experimentally, which allows for weaving all the important details and general methods to a broad view on dissipative solitons in reaction-diffusion systems.

Therefore, this book should attract not only the experienced scientist, who is interested in self-organization phenomena and might become inspired to new research directions, but also the student, who likes to learn how to investigate complex systems. And somehow, I hope, that this book transfers my fascination to other people.

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