attractors. All these dimensions are related to physical parameters and phenomenological theories of turbulence. The remainder of the book (Chapters 4 and 5) consists of applications of the statistical approach to the study of turbulent transport and turbulent spectra. This topic is among the new results developed in the monograph. For instance, the authors establish a rigorous link between the Kolmogorov spectrum and the Navier–Stokes Equations and show how the intermittency of turbulent flows is related to the fractal nature of energy dissipation in 3-dimensional flows.

In summary, the monograph is an excellent reference for anyone who is interested in the mathematical theory of the Navier–Stokes Equations and Turbulence. This book is a delightful source of elegant and powerful ideas, packed with mathematical gems and far-reaching applications. It fills a major gap in the literature and will be useful to students and practitioners alike for many years to come. I highly recommend this book. I hope that Cambridge University Press will publish a 2nd edition of this book in paperback so that it will be available to a broader audience.

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Shock Focusing Effect in Medical Science and Sonoluminescence
by R.C. Srivastava, D. Leutloff, K. Tkayama, H. Gröning (Eds.) (Springer 2003) ISBN 3-540-42514-4

The book is a collection of 9 papers devoted to shock focusing effects. In general, paper collections as compared to textbooks can more timely target on certain aspects of research at the cutting-edge. In the present book edited by Srivastava et al. this advantage has not been taken. The references only span till the end of the year 2000. At this time it was not decided if shock waves are a prerequisite for the shortness of light emission. Thus, novel findings are lacking in the rapidly developing field of single bubble sonoluminescence. Roberts and Wu in Chapter 1 model the acoustic wave propagation with the self similar solution of Guderley and extend it for the case of an non-ideal gas. Further they address the linear stability of the shock front. In contrast, Kwak and Lee in Chapter 3 object the validity of Guderley's solution for the specific radial dynamics at work. Hence, they find only propagating pressure waves without steepening. Additionally, they address the temperature distribution of the gas phase and emission of acoustic transients into the liquid. The third work dealing with wave focusing inside the bubble by Srivastava and Leutloff in Chapter 5 again supports the hypothesis that a shock front forms. Here, I missed the bubble dynamics in their model which is known to be crucial for the energy concentration in the last stage of collapse. The last chapter on sonoluminescence by Hilgenfeldt and Lohse poses the question if "Upscaling single-bubble sonoluminescence" can be achieved by lowering the frequency of the acoustic forcing. Yet, only short time later this question has been answered by the same group [1]. Furthermore, two carefully written reviews have surfaced meanwhile, one from Hammer and Frommhold [2] discussing the source of light emission and a comprehensive article in Review of Modern Physics by Brenner et al. [3] encompassing most of what is known in this field. Although interesting from the perspective on the art of modeling spherical converging waves, this book can be considered outdated for the present understanding of single bubble sonoluminescence.

The second topic of the book is dealing with medical applications of shock waves. There, maybe due to the more senior research field, I found less drawbacks from the long delay till publishing. A sweeping and concise article on the interplay of cavitation bubbles with shock waves, bubble–bubble interaction, and the effect of rigid surfaces is presented in Chapter 4 by

Tomita and Shima. In Chapter 6 Takayama discusses the generation of shock waves and various medical applications such as for renal stone fragmentation, drug delivery, revascularization of thrombosis, and orthopedic surgery. One of the many mechanisms which cause the fragmentation of stones by focused shock waves is modeled in Chapter 7 by Chuong: The impulsive pressure loading of the brittle stone material by liquid jets from collapsing cavitation bubbles. A highlight of the book is Chapter 7 on pressure measurements in lithotripsy by Ueberle. There, different hydrophones are compared and the significance of various pulse parameters for the stone fragmentation-efficiency is tabulated. This article gives really a benefit to researchers struggling with the characterization of lithotripters. The last chapter from Delius spans the development of shock wave sources, via a description on the treatment of different stone diseases, to an exciting future applications of local drug delivery. In my opinion, this chapter and the one from Ueberle can be regarded as the most relevant for medical doctors and researchers in lithotripsy. They will benefit also from the list of references as a further source of information.

In summary, the collection of papers can not be regarded as a timely treatise on the effect of shock wave focusing, neither in medical applications nor in sonoluminescence. Nevertheless, I can imagine that this book might serve as an overview on different aspects of shocks in medical applications; a book that introduces your Phd-student to this subject. Also some of the experimental chapters are decorated with detailed and well prepared photographs, e.g., interferograms and high-speed photographic sequences.

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