

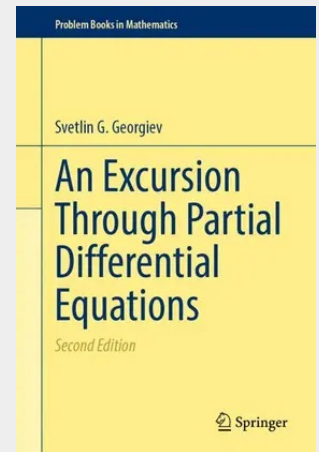
An Excursion Through Partial Differential Equations

Presenting a rich collection of exercises on partial differential equations, this textbook—now in its second edition—equips readers with over 600 examples, exercises, and problems, complete with detailed solutions or hints. It explores a broad spectrum of partial differential equations, fundamental to mathematically oriented scientific fields, from physics and engineering to differential geometry and variational calculus. New in this edition is the examination of models in physics that can be described by partial differential equations, including those in diffusion, acoustics, quantum mechanics, electromagnetism, and more. A new section is devoted to the use of distributions, or generalized functions, with a focus on the highly useful delta function. Additional problems and examples have been included, along with an expanded bibliography.

Thoughtfully organized into eight chapters, plus two additional chapters with solutions, the journey begins with fundamental problems in the realm of PDEs. Readers progress through first- and second-order equations, wave and heat equations, and finally, the Laplace equation. The text adopts a highly readable and mathematically rigorous format, ensuring that concepts are introduced with clarity and structure.

Designed to cater to upper undergraduate and graduate students, this book offers a comprehensive understanding of partial differential equations. Researchers and practitioners seeking to strengthen their problem-solving skills will also find this exercise collection both challenging and beneficial.

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