

**Lesnic, Daniel**

**Inverse problems with applications in science and engineering.** (English) [Zbl 1479.35001](#)  
Boca Raton, FL: CRC Press (ISBN 978-0-367-00198-8/hbk; 978-1-032-12538-1/pbk; 978-0-429-40062-9/ebook). xv, 342 p. (2022).

Publisher's description: Driven by the advancement of industrial mathematics and the need for impact case studies, Inverse Problems with Applications in Science and Engineering thoroughly examines the state-of-the-art of some representative classes of inverse and ill-posed problems for partial differential equations (PDEs). The natural practical applications of this examination arise in heat transfer, electrostatics, porous media, acoustics, fluid and solid mechanics – all of which are addressed in this text.

Features:

- Covers all types of PDEs – namely, elliptic (Laplace's, Helmholtz, modified Helmholtz, biharmonic and Stokes), parabolic (heat, convection, reaction and diffusion) and hyperbolic (wave)
- Excellent reference for post-graduates and researchers in mathematics, engineering and any other scientific discipline that deals with inverse problems
- Contains both theory and numerical algorithms for solving all types of inverse and ill-posed problems

**MSC:**

- 35-01** Introductory exposition (textbooks, tutorial papers, etc.) pertaining to partial differential equations
- 35R30** Inverse problems for PDEs
- 74-01** Introductory exposition (textbooks, tutorial papers, etc.) pertaining to mechanics of deformable solids
- 76-01** Introductory exposition (textbooks, tutorial papers, etc.) pertaining to fluid mechanics
- 78-01** Introductory exposition (textbooks, tutorial papers, etc.) pertaining to optics and electromagnetic theory
- 78A46** Inverse problems (including inverse scattering) in optics and electromagnetic theory
- 76M21** Inverse problems in fluid mechanics

**Full Text:** [DOI](#)