**SIAM Book Proposal**

**Society for Industrial and Applied Mathematics**

Please help us evaluate your proposal fairly and accurately by providing careful, complete responses. This form will be read by non-technical people and applied mathematicians who may work in areas different from your own.

In addition to the information outlined in this form, please provide:

* a **preface** that describes the scope and aims of the book, including why to buy it and how to use it (if needed)
* a **table of contents** with a short description of each chapter
* a list of **sample references**

These materials and this form will be given to reviewers. Be sure to convey exactly what you are trying to do (reference work, textbook, monograph, overview, handbook) and whom you are trying to reach (i.e. researchers, students, professionals). Assume that reviewers know little about the importance of your topic.

**Author Information**

Please provide preferred contact information for all authors of this project.

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| Name:      Title:      Affiliation:      Address:      Telephone:      Email:       | Name:      Title:      Affiliation:      Address:      Telephone:      Email:       |
| Name:      Title:      Affiliation:      Address:      Telephone:      Email:       | Name:      Title:      Affiliation:      Address:      Telephone:      Email:       |

Additional Authors:

**Book Information**

Title:

Projected no. of pages:       Projected no. of chapters:

Total projected no. of figures:

* black & white:
* color:

All manuscripts not in the Classics series should be submitted in LaTeX. The SIAM macro is [here](https://www.siam.org/publications/books/about-siam-books/for-authors/detail/preparing-your-manuscript).

Percentage of manuscript completed:       Expected date of completion:

Information on indexing can be found at <http://www.siam.org/books/authors/indexguidelines.pdf>

**Book Content**

**Provide a brief non-technical description of your book****, including the aim and scope. Please keep in mind that many of the people who use this information will not be mathematicians.**

**List three unique features of your book. These should be compelling and pragmatic reasons why readers should buy your book instead of existing books.**

**Are any topics omitted? If so, why? What topics are emphasized and why?**

**What applications are discussed?**

**List new methods or special techniques covered in your book but not discussed in other books****. Why are these topics important?**

**What previous knowledge is the reader assumed to have?**

**How will this book benefit the reader?**

**What software, if any, is used in your book?**

**Textbooks**

**If your book is appropriate for classroom use, complete this section; otherwise skip to the next section on Competing and Similar Books.**

**What course or course topics are relevant to the topic of the book?**

**What textbook(s) are you currently using?** **Do you currently suggest any supplemental readings?**

**What is the level of the textbook?**

[ ]  Undergraduate [ ]  Advanced Undergraduate/First-Year Graduate [ ]  Advanced Graduate

[ ]  Primary [ ]  Supplementary

**Competing and Similar Books**

**Please list the author(s), title, and publisher for any competing or similar books. Please tell us how your book compares.**

**Market**

SIAM uses the following subject areas to identify the special interests of its members. Please use an asterisk to mark the code most appropriate for your book.

     (1) Linear algebra and matrix theory

     (2) Real and complex analysis including approximation theory, integral transforms (including Fourier series and wavelets), integral equations, asymptotic methods, and special functions

     (3) Ordinary differential equations including dynamical systems

     (4) Partial differential equations including inverse problem

     (5) Discrete mathematics and graph theory including combinatorics, combinatorial optimization, and networks

     (6) Numerical analysis (theory)

     (7) Computational mathematics including scientific computing, parallel computing, and algorithm development

     (8) Computer science including computer architecture, computer hardware, computational complexity, applied logic, database, symbolic computation

     (9) Applied probability including stochastic processes, queueing theory, and signal processing

     (10) Statistics including data analysis and time series analysis

     (11) Control and systems theory including optimal control

     (12) Optimization theory and mathematical programming including discrete and numerical optimization and linear and nonlinear programming

     (13) Communication theory including information theory and coding theory

     (14) Applied geometry including computer-aided design and related robotics

     (15) Imaging science including computer graphics, computer vision, related robotics, and tomography

     (16) Classical mechanics of solids including elasticity, structures and vibrations, and constitutive models

     (17) Fluid mechanics including turbulence, aeronautics, and multiphase flow

     (18) Quantum physics, statistical mechanics, and relativity

     (19) Geophysical sciences including reservoir modeling, seismic exploration, and petroleum engineering

     (20) Atmospheric and oceanographic sciences

     (21) Chemical kinetics, combustion theory, thermodynamics, and heat transfer

     (22) Life sciences including biophysics, biomedical engineering, and biomathematics

     (23) Environmental sciences

     (24) Economics and finance

     (25) Social sciences

     (26) Functional analysis and operator equations, and integral and functional equations

     (27) Management sciences including operations research

     (28) Mathematics education (K-12, undergraduate curriculum, graduate study, and modeling courses)

     (29) Astronomy, planetary sciences, and optics

     (30) Simulation and modeling

     (31) Materials science, polymer physics, and structure of matter

     (32) Electromagnetic theory, semi-conductors, and circuit analysis

     (40) Applications of mathematics and computation in industry

     (43) Dynamical systems

     (44) Nonlinear waves and coherent structures

     (48) Data mining, information retrieval

     (51) Data sciences

Other

**What engineers would read your book?**

[ ]  Industrial [ ]  Aeronautical [ ]  Biomedical [ ]  Mechanical [ ]  Chemical [ ]  Electrical [ ]  Manufacturing [ ]  Civil [ ]  Other \_\_\_\_\_\_\_\_\_\_\_

**What other scientists would read your book?**

[ ]  Astronomers [ ]  Physicists [ ]  Earth Scientists [ ]  Biologists [ ]  Chemists [ ]  Economists [ ]  Other \_\_\_\_\_\_\_\_\_\_\_

**Series**

**Which** [book series](http://www.siam.org/books/series/index.php) **do you think is appropriate for your book? You may choose more than one.**

[ ]  **Advances in Design and Control** focuses on mathematical, computational, and statistical aspects of these topics in the context of scientific and engineering applications.

[ ]  **Classics** are monographs and textbooks declared out of print by their original publishers, though they are of continued importance and interest to the mathematical community.

[ ]  **Computational Science and Engineering** publishes research monographs, advanced undergraduate- or graduate-level textbooks, and other volumes of interest to an interdisciplinary CS&E community of computational mathematicians, computer scientists, scientists, and engineers.

[ ]  **Data Science,** SIAM’s newest book series, covers the mathematical, computational, and scientific aspects of data science. The series will publish high-impact research monographs, in-depth essays on emerging trends, tutorials with a broad reach, state-of-the-art surveys, scholarly research retrospectives, and textbooks.

[ ]  **Financial Mathematics** publishes research monographs, advanced undergraduate- or graduate-level textbooks, and other volumes of interest to the broader mathematical finance community.

[ ]  **Fundamentals of Algorithms** is a collection of short user-oriented books on state-of-the-art numerical methods that provide readers with sufficient knowledge to choose an appropriate method for an application and to understand the method’s strengths and limitations.

[ ]  **Mathematics in Industry** aims to ensure that important mathematical methods and techniques that are widely applicable in industrial settings are available as books.

[ ]  **Mathematical Modeling and Computation** covers analytical and computational techniques, describes significant mathematical developments, and introduces modern scientific and engineering applications.

[ ]  **MOS-SIAM Series on Optimization** published in partnership with the Mathematical Optimization Society, the series advances the understanding and practice of optimization. Topics vary and books are written clearly, in a manner appropriate to their level.

[ ]  **Other Titles in Applied Mathematics** includes problem books, tutorials, handbooks, software manuals, textbooks, and other general applied mathematics titles.

[ ]  **Software, Environments, and Tools** includes handbooks and software guides, as well as monographs on practical implementation of computational methods, environments, and tools.

[ ]  **SIAM Spotlights** is a new of brief and enlightening books on timely topics in applied and computational mathematics and scientific computing. The books are concise (75–125 pages), quick to market, and attractively priced.