



**Becoming a Constructive,
Efficient, and Reliable
Reviewer**



■ 目录

Why Reviewing Matters

The Review Process

Professional Standards

Practical Implementation

Building Your Reputation

Key Takeaways

CONTENTS

The background is a traditional Chinese ink wash painting. It depicts a misty landscape with rolling mountains, a body of water, and a pavilion on the right. On the left, there are bamboo stalks and a rock. The overall style is minimalist and serene, with a monochromatic color palette of greys and blues.

01

Why Reviewing Matters

Why Peer Reviewing Accelerates Your Career Growth

01

Early Access to Cutting-Edge Research

Reviewing grants privileged access to unpublished manuscripts and editorial decision-making processes, revealing what distinguishes publishable contributions from rejected submissions in your field.

02

Reputation Building and Network Expansion

Consistent, high-quality reviewing establishes you as a reliable expert whom editors actively seek out, expanding your professional network and visibility within the SIAM community.

03

Skill Development and Community Service

Critical analysis of diverse methodologies sharpens your scientific writing and reasoning abilities while fulfilling your responsibility to maintain standards in applied mathematics publication.

Critical Checks Before Accepting Any Review Invitation



Assess Topical Alignment

Honestly evaluate whether your expertise permits authoritative judgment on the specific mathematical or computational contributions presented in the manuscript.

Realistic Time Budgeting

Allocate four to six hours for thorough initial reading and detailed report composition, ensuring you can meet editorial deadlines without rushing.

Identify Conflicts of Interest

Disclose personal relationships, institutional affiliations, or recent collaborations that could compromise your objectivity in evaluating the work.

Constructive Refusal Practices

Suggest qualified alternative reviewers when declining, transforming your declined invitation into valuable editorial assistance that maintains professional goodwill.

The background is a traditional Chinese ink wash painting. It depicts a misty landscape with rolling mountains, bamboo stalks on the left, and a pavilion on a lake in the lower right. The overall tone is light and atmospheric.

02

The Review Process

The Fifteen-Minute First Pass Assessment



Core Contribution Verification

Examine abstract and conclusion sections to verify clarity and legitimacy of claimed contributions. Scan figures and numerical results to confirm visual evidence substantiates assertions without discrepancies.



Reference Check and Preliminary Disposition

Check reference lists for omissions of critical recent SIAM literature. Form preliminary recommendations among rejection, major revision, or minor revision categories while documenting three central concerns.

Structuring Your Review Report Effectively

Summary and Major Comments

Begin with one to two sentences capturing core contribution and assessment. Organize major comments by descending importance, addressing substantive concerns that determine publication suitability.



Minor Comments / Language

Cover presentation issues including notation inconsistencies and citation errors. Replace vague criticism with specific, implementable feedback that authors can directly address.



Professional Communication

Transform opinionated commentary into professional instruments for scientific improvement through objective, constructive tone that respects author effort while maintaining rigor.



Evaluating Mathematical and Computational Rigor

Theorem Assumption Alignment

Verify whether stated assumptions logically support derived conclusions, identifying mismatches between claimed generality and actual proven results.

Numerical Experiment Validation

Check whether observed convergence orders match theoretical predictions and whether computational reproducibility is supported through disclosed parameters or available code.

Algorithm and Proof Completeness

Assess pseudocode descriptions for completeness and convergence proofs for rigor, noting typical gaps in auxiliary lemma justification.

Complexity Discussion Honesty

Ensure candid treatment of computational challenges, particularly regarding curse of dimensionality in uncertainty quantification and high-dimensional problem settings.

The background is a traditional Chinese ink wash painting. It depicts a misty landscape with rolling mountains, a body of water, and a pavilion with a curved roof on the right. On the left, there are bamboo stalks and a dark rock. The overall style is minimalist and serene, with a monochromatic color palette of greys and blues.

03

Professional Standards

Common Pitfalls That Undermine Review Quality

Destructive Demands and Personal Attacks

Avoid requesting unnecessary experiments like mandatory three-dimensional extensions when core contributions are demonstrated. Never use demeaning language, sarcasm, or personal attacks that poison professional relationships.

Unreasonable Recommendations and Confidentiality Breaches

Do not propose methodological replacements requiring complete study rewrites. Maintain absolute confidentiality by prohibiting discussion with colleagues and personal use of unpublished ideas encountered during review.

Ethical Obligations and Confidentiality Requirements



Strict Information Security

Prohibit discussing manuscript content with any third parties, explicitly including social media platforms where inadvertent disclosure risks are highest.

Plagiarism and Misconduct Protocols

Report suspected plagiarism or duplicate publication exclusively to handling editors rather than confronting authors directly or making public accusations.

Mandatory Recusal Standards

Immediately decline invitations when objective evaluation becomes impossible due to intense competitive relationships or fundamental intellectual disagreements.

The background is a traditional Chinese ink wash painting. It depicts a misty landscape with rolling mountains, a body of water, and a pavilion with a curved roof on the right. On the left, there are bamboo stalks and a dark rock. The overall style is minimalist and atmospheric, with a monochromatic color palette of greys and blues.

04

Practical Implementation

Workflow Tools That Streamline Review Efficiency

Bibliographic Management Systems

Employ Zotero or Mendeley for systematic comparison of manuscript references against existing literature to identify relevant omissions efficiently.

Calendar Scheduling Discipline

Allocate two dedicated half-day blocks for completion rather than procrastinating into final deadlines that compromise thoroughness.

Manual Derivation Verification

Verify selected derivations by hand calculation, particularly appendix material where errors frequently evade author detection.

Template Reuse Strategies

Maintain personal templates of well-received review reports to accelerate future composition while ensuring consistent structural quality.

■ Leveraging Completed Reviews for Career Advancement

Follow-up Evaluation and Learning

Respond to editor requests for re-evaluation of author revisions, studying decision letters to compare final dispositions against your recommendations and calibrate future assessments.

Formal Documentation and Recognition

Document reviewing service in your curriculum vitae using specific journal nomenclature such as Peer Reviewer for SIAM Journal on Scientific Computing, strengthening fellowship and promotion cases.

The background is a traditional Chinese ink wash painting. It depicts a misty landscape with rolling mountains, a body of water, and a pavilion with a curved roof on the right. On the left, there are bamboo stalks and a dark rock formation. The overall style is soft and atmospheric, with a monochromatic color palette of greys and blues.

05

Building Your Reputation

Progressing from Novice to Recognized Expert Reviewer

Appropriate Entry Points

Begin through mentor nominations and conference proceedings review where expectations accommodate learning curves and provide constructive feedback experience.

Reputation Construction Through Consistency

Build credibility through punctual delivery, demonstrable report quality, and professional communication demeanor that editors remember and recommend.

Strategic Disclosure and Reciprocity

Acknowledge reviewing service in publication acknowledgments or cover letters, signaling community investment that may expedite handling of your own manuscripts.

The background is a traditional Chinese ink wash painting. It depicts a misty landscape with rolling mountains, a body of water, and a pavilion. On the left, there are bamboo stalks. The overall style is minimalist and serene, with a monochromatic color palette of greys and blues.

06

Key Takeaways

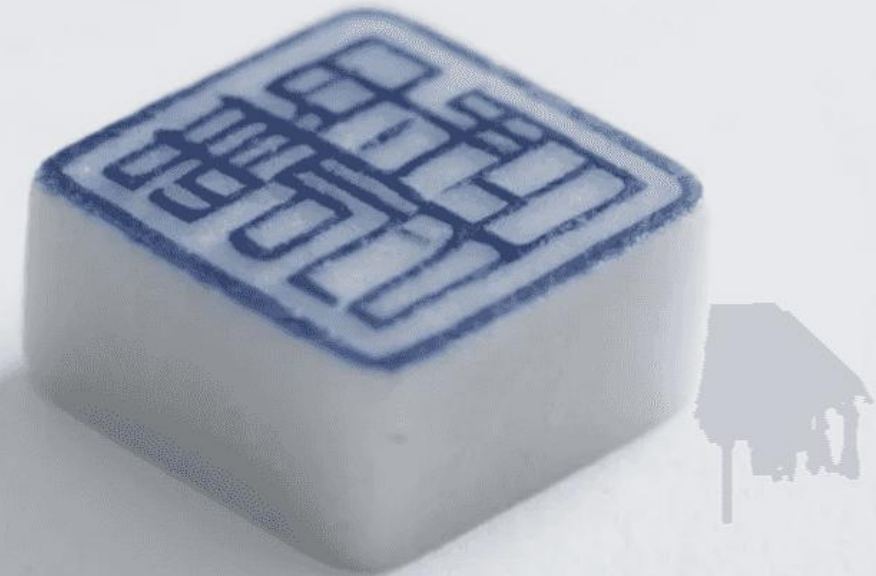
Immediate Actions to Transform Your Reviewing Practice

The Golden Rule

Review as you would want yours reviewed: rigorous, fair, and kind.

Three Commitments

- 1) fifteen-minute suitability assessment
- 2) summary-major-minor template
- 3) reconceptualize reviewing as integral professional development rather than burden.





谢谢!
Thank You