A Brief Review of *SIAM Review*

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Abstract

*SIAM Review* is examined for referee delay, citations, and paper length after the reorganization of the journal in 1999. A single, very-highly cited article was responsible for all the increase to the impact factor during the past decade; the reorganization did not improve the journal overall. Some suggestions are made for additional changes.

Key words: *SIAM Review* · citations · paper length · referee delay

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Background

The Society for Industrial and Applied Mathematics (SIAM) publishes nearly a dozen periodicals. *SIAM Review* is the “leading” journal which is distributed to all members.

*SIAM Review* underwent major revisions about a decade ago (Wright [1999]). Although no reason was given, the changes apparently were meant to create a publication of the highest possible profile. For example, color printing was adopted. The journal’s traditional mix of papers was divided into five explicit sections:

1. The *Survey and Review* section is self-explanatory. Especially long survey papers were encouraged.

2. A *Problems and Techniques* section publishes original research papers. This section has since been renamed *Expository Research Papers*.

3. The *SIGEST* section was created to reprint important research papers from other SIAM journals.

4. The *Education* section publishes short, instructional units.

5. *Book Review* articles.

When these sections were created, an older section of *Problems and Solutions* was discarded. The journal also ceased printing society news in the back pages.

Evaluation

The changes to *SIAM Review* in 1999 did not increase the significance of the journal to the mathematical community. The three-year moving sum of citations barely rose, from 225 for 2002, to 244 for 2009 (*Figure 1*).

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Figure 1: Moving window of citations to SIAM Review articles of the preceding three years (SJR, 2007). For example, the quantity for 2009 is the total citations then available to all articles published in 2006–2008. A single article by Newman (2003) accounts for the elevated citations for the windows ending in 2004–2006.

**Survey and Review** The Survey and Review section has a tradition of invited submissions with sometimes spectacular results. The most highly cited article by far in any SIAM journal is an invited survey of social networks by Newman (2003). This article is off the chart compared to all others, with over 3,100 citations as of 2010. The many citations temporarily raised the five-year impact factor of SIAM Review, which may have wrongly suggested that the 1999 changes were successful.

In recent years, more Survey and Review articles appear to be contributed (as opposed to invited). This trend is suggested by the lengthening refereeing period starting in 2004 (Figure 2 upper left).

Survey articles typically have more citations than research papers (Figure 3 upper left compared with others). Many Survey and Review articles have over 100 citations, but when the data were gathered in 2010, all papers since 2004 had fewer than 100 citations. If more Survey and Review articles are indeed contributed, then they appear to be less interesting to readers.

**Problems and Techniques** The Expository Research Papers section seems not to attract important original research. The papers are consistently less frequently cited than those in SIGEST and Survey and Review (Figure 3 upper right compared with left column).

**SIGEST** Some papers reprinted from other journals do receive as many citations as Survey and Review articles. It is reasonable to ask whether papers that have ten or fewer citations should be reprinted (Figure 3 lower left).
**Education**  The education papers seem to be of little interest in recent years. The median paper now receives few if any citations (Figure 3, lower right). One may speculate that authors are reluctant to contribute, because the refereeing period is among the longest in the journal (Figure 2, lower right compared with upper row) even though the papers are consistently the shortest (Figure 4, lower right compared with others).

**Conclusions**

The modifications to *SIAM Review* a decade ago did not make the journal more valuable to readers as measured by citation analysis. SIAM should consider further editorial changes to make the journal more attractive. The evidence above suggest that the following changes may be beneficial:

1. The *Survey and Review* section should commission more articles that are expected to receive many citations. Independent of the editorial board, a committee of the best authors and researchers might be convened to suggest topics and authors.

2. The *Expository Research Papers* section should be discontinued as there is no citation evidence that the articles are truly outstanding.

3. *SIGEST* should reprint only papers that have a great many citations.

4. The *Education* section should be reconsidered in light of the low citation record and the long refereeing period.

A purpose for modifying *SIAM Review* in 1999 must have been to create a stimulating publication to attract and retain society members. A publication more suited for that purpose would be a magazine rather than a research journal. With the removal of the *Expository Research Papers* section, *SIAM Review* may well reduce the number of issues to quarterly. The savings could be used to convert *SIAM News* to a color magazine as I have previously suggested (Grcar [2010]).

**References**

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Figure 2: Duration of editorial review for articles in three sections of SIAM Review. Data is not shown for SIGEST because papers in that section were refereed by other journals.
Figure 3: Quantity of citations to articles in four sections of SIAM Review. The most-cited Survey and Review paper of Newman (2003) is off the scale.
Figure 4: Length, in pages, of articles in four sections of *SIAM Review*. 