Computers in the Schools

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Call for papers

Special Issue: *Computers in K-20 Mathematics Education*

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Just like advances in mathematics research often depend on the methods of calculation available, the effectiveness of mathematics education theories and success of mathematics teaching methods nowadays depend on our knowledge and understanding of how computers can support mathematical learning. The aim of this special issue is to collect scholarly reports on the effective use of computers within the wide range of experiences, grade levels, and curricular topics. Of a special interest are submissions that demonstrate the duality of mathematics learning and computer use in the sense that whereas computers do enable an easy path to mathematical knowledge, mathematics itself can be used to improve the efficiency of computations, which, in turn, enable better access to new mathematical ideas and concepts.

At the pre-college level, the special issue seeks to identify successful experiences in using a computer to communicate the presence of big ideas within seemingly mundane curricular topics and, by the same token, in enabling the study of traditionally difficult and conceptually rich topics through the use of computers. At the college level, the

special issue is interested in articles that demonstrate how experimental approach to mathematics that draws on the power of computers to perform numerical and symbolic computations as well as graphical and geometric constructions, makes it possible to balance informal and formal learning of mathematical ideas. Recommended topics to be considered may center on the following questions:

- How are computers used in the preparation of K-12 teachers of mathematics?
- How does the use of computers enable the revision of undergraduate mathematics curriculum?
- How does the use of computers allow one to connect higher concepts to lower concepts and vice versa?
- How can the use of computers contribute to the teaching of upper level mathematics courses or facilitate the revision of advanced mathematics courses to address state-of-the-art in mathematics research?
- How does the use of computers enable the discovery of new knowledge?
- How do computers allow one to teach mathematics differently in the grade school?
- How do computers allow one to teach mathematics differently in the middle school?
- How do computers allow one to teach mathematics differently in the high school?
- How do computers allow one to teach undergraduate mathematics differently?

- How do computers allow one to teach graduate level mathematics courses differently?

Articles are expected to include a theoretical discussion of educational, mathematical, and epistemological issues associated with the use of computers in mathematics education. Selected articles should be prepared according to the APA style, 20-30 pages long (double-spaced) including title page, abstract page, figures, tables, and references (see author details at http://www.tandfonline.com/action/authorSubmission?journalCode=wcis20&page=instructions).

Authors are asked to e-mail their manuscripts in MS Word format to the Guest Editor at abramovs@potsdam.edu. Deadline for the submission of manuscripts for this special issue is November 15th, 2011.