High Performance Computing group

Friedrich-Alexander-Universität Erlangen-Nürnberg
Martensstr. 1
91058 Erlangen, Germany

Prof. David A Bader
Editor-in-Chief, ACM TOPC

Erlangen, June 01, 2019

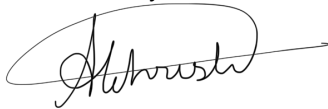**Submission of a manuscript**

Dear David A Bader,

We wish to submit a manuscript entitled "A Recursive Algebraic Coloring Technique for Hardware-Efficient Symmetric Sparse Matrix-Vector Multiplication" for consideration as a regular paper in the ACM TOPC journal. The article deals with a novel coloring based approach to parallelize Symmetric Sparse Matrix Vector Multiplication (or numerical kernels) kernel having dependency. Compared to the existing coloring approaches out approach puts special emphasis on enhancing hardware efficiency and reduction of parallelization overheads. This enables our approach to gain substantial performance speedups on modern multicore systems compared to other state-of-the-art methods. Our entire performance analysis is backed by a strong performance model which ensures the quality of our method. We believe that this manuscript is well-suited for the journal as it aims in finding generic solutions to important challenges in exploiting parallelism.[1]

This manuscript has not been published and is not under consideration for publication elsewhere. A short five page summary of the method was submitted for 2019 ACM Student Research Competition (SRC) grand finals. As the paper received a second place it will appear in the ACM SRC homepage in near-future.[2] However, it shouldn't conflict this manuscript as it does not explain the method in detail, do not include performance modeling, nor does it have any detailed performance analysis as done in this manuscript.

If you feel that the manuscript is appropriate for your journal, we suggest Rich Vuduc from Georgia Institute of Technology as the review (or associate) editor.

Thank you for consideration.

Yours sincerely,

on behalf of all authors
Christie Louis Alappat

PhD student
Friedrich Alexander University
Department of Computer Science
✉ christie.alappat@fau.de

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[1] https://dl.acm.org/citation.cfm?doid=2632163.2661651

[2] https://src.acm.org/