**Journal of Powder Technology**

Editor

Linz, November 4th, 2014

**Manuscript for Journal of Powder Technology**

Dear Mr. Seville,

Please find attached our manuscript entitled ‘Hybrid parallelization of the LIGGGHTS Open-Source DEM code’ for the intended publication in the ‘Journal of Powder Technology’.

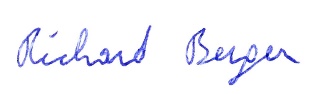
DEM simulations have become an important tool for studying granular flow in a variety of industrial applications. Industrial-scale simulations continue to grow in complexity and require an increasing amount of computational resources. Measures have to be taken to ensure simulation codes continue to scale on modern computer architectures. In this work we describe our efforts of improving our open-source DEM code called LIGGGHTS by introducing a hybrid parallelization which uses both message-passing and shared-memory programming. It describes the problems encountered and solutions implemented to achieve scalable performance.

We chose the ‘Journal of Powder Technology’ as a prospective home for this paper, because other groups presented similar parallelization efforts here in the past. We believe that the results of our test cases showcase the practicality of our methods on a wide range of real-world problems.

We affirm that the submission represents original work that has not been published previously and is not currently being considered by another journal. Also, we confirm that each author has seen and approved the contents of the submitted manuscript.

So I hope that you enjoy reading this manuscript. If you by any reason think that the ‘Journal of Powder Technology’ is not the right place for this piece of work, please let me know!

Kind regards,



Richard Berger