



Invitation Letter

Dear Colleagues:

Concurrent multi-length scale modeling is very important in systems with strong coupling between scales, and it is also very challenge. We cordially invite you to participate in the 10th International Conference on Computational Methods (**ICCM2019**) by giving an invited-talk in our mini-symposium entitled **Concurrent multiscale modeling from electrons to finite elements**. The conference will be held at **Singapore, July 9th-13th, 2019**.

The state-of-art super computers can explicitly deal with atoms in order of billions, which are about the atoms within one micron cube. It is unlikely in near future that the brutal force atomistic modeling can solve engineering material systems that involve physical phenomena across 10 orders of magnitude in length scale, such as fracture. Finite element modeling cannot reach the accuracy, but the atomistic modeling cannot fit the size requirements. Multiple length scale modeling is required to perform atomics (as well as quantum) simulations over macro scales. It requires the coupling between finite elements to the atoms and electrons side-by-side (hands-shaking). Such concurrent multi-length scale modeling is very challenging. Talks are solicited for both the development of algorithms and applications of concurrent multi-length scale modeling in computational mechanics, such as Quasi-Continuum method, coupled atomistic and discrete dislocation method, concurrent atomistic-continuum method, multiscale coarse-graining method, super-atom method, dissipative particle dynamics, coarse-grained molecular dynamics, micromorphic theory, and atomistic field theory. This mini-symposium (numbered as **MS-032**) is dedicated to concurrent multi-length scale modeling. Some of the topics of interest are:

- Multiscale modeling from Finite elements (All FEMs, including XFEM and meshfree) to atomistic;
- Quantum mechanics – molecular mechanics couplings;
- Full spectrum multiscale couplings (FEM/MM/QM and more);
- All the methodologies and applications are welcome.



Contributions that integrate experimental and computational approaches in mechanics and materials are particularly encouraged.

Some important dates:

- Abstracts due: ~~Mar 15~~ **Mar 31st**, 2019.
- Deadline for Early-Bird Registration payment: **Mar 31st**, 2019
- Deadline for Regular Registration payment: **May 31st**, 2019
- Deadline for submitting revised abstracts or final papers: Jun 9th, 2019
- Conference dates: **July 9-13**, 2019

The submission and registration please refer to the following webpage: <http://sci-entech.com/ICCM/index.php/ICCM2019/ICCM2019>

We look forward to meeting you at Singapore.

Best Regards,

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