Shi Jin

Big fan of understanding the nature with theory and computation

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Education

University of Washington (UW) — Seattle, WA, USA
PhD in Physics — *2019 (expected)*

- Thesis: *Fission dynamics in a microscopic theory.*
- Advisor: Aurel Bulgac, Professor.

University of Science and Technology of China (USTC) — Hefei, Anhui, China
Bachelor of Science, with distinction — *Jun. 2013*

- Outstanding Graduates Award (top 5% academic performance)

Knowledge & Skills

- 5+ Years of experience in high-performance scientific code development with C and CUDA (GPU) programming using parallel programming libraries (MPI).
- 5+ Years of experience in working on leadership supercomputers: OLCF Titan, Summit, NERSC Edison, NERSC Cori, Piz-Daint (Switzerland), TSUBAME 3.0 (Japan).
- Hands-on experience with various performance profiling tools: CrayPAT, NVprof, etc.
- Mastery of programming languages: C, C++, Python, Matlab, Fortran, Bash.
- Independent research in various real-time simulations of nuclear dynamics with density functional theory (DFT), published in top peer-reviewed journals Physical Review Letter, Physical Review C, etc. (see publications).
- Good knowledge of applied math: various numerical techniques in solving large-scale partial differential equations (PDEs), eigenvalue problems, linear equations; spectral methods; numerical optimization.

Conferences

- OLCF GPU Hackathon, Boulder, CO, June 2018
  - Working in a team with experts from NVDIA and DOE laboratories, I made a sufficient improvement on the performance of our MPI+GPU code in the real time simulations by doing detailed performance profilings.
- American Physics Society (APS) April Meeting, Columbus, OH, April 2018
- Stewardship Science Academic Programs (SSAP) Symposium, Rockville, MD, Feb. 2018
- LANL FIESTA fission school and workshop, Santa Fe, NM, Sep. 2017

Publications

- Journal paper
  - A. Bulgac and S. Jin, *Dynamics of Fragmented Condensates and macroscopic entanglement*, Phys. Rev. Lett. 119, 052501 (2017)
  - A. Bulgac, M. M. Forbes, S. Jin, R. Navarro Perez and N. Schunck, *Minimal Nuclear Energy Density Functional*, Phys. Rev. C. 97, 04413 (2018)
  - S. Jin, A. Bulgac, K. Roche and G.Wlazłowski, *Coordinate-Space Solver for Superfluid Many-Fermion Systems with Shifted Conjugate Orthogonal Conjugate Gradient Method*, Phys. Rev. C 95, 044302 (2017)
  - Aurel Bulgac, Shi Jin, Kenneth Roche, Nicolas Schunck and Ionel Stetcu, *Fission Dynamics*, arXiv:1806.00694, submitted to Phys. Rev. Lett.
  - Aurel Bulgac, Shi Jin and Ionel Stetcu, *Unitary evolution with fluctuations and dissipation*, arXiv:1805.08098, submitted to Phys. Rev. Lett.
  - A. Bulgac, M.M. Forbes, and S. Jin, *Nuclear density functionals: what do we really know?* arXiv:1506.09195
- Conference paper
  - I. Stetcu, A. Bulgac, S. Jin, K. J. Roche, N. Schunck, *Real time description of fission*, Proceedings of the "15th Varenna Conference on Nuclear Reaction Mechanisms," Varenna, Italy, June 2018
  - J. Grineviciute, P. Magierski, A. Bulgac, S. Jin and I. Stetcu, *Accuracy of fission dynamics within the time dependent superfluid local density approximation*, Proceedings of XXXV Mazurian Lakes Conference on Physics, Piaski, Poland, September 3-9, 2017
  - A. Bulgac, S. Jin, P. Magierski, K.J. Roche, N. Schunck, and I. Stetcu, *Nuclear Fission: from more phenomenology and adjusted parameters to more fundamental theory and increased predictive power* , The FUSION17 conference, Hobart, Australia, Feb. 20-24, 2017
  - A. Bulgac, S. Jin, P. Magierski, K.J. Roche, and I. Stetcu, *Microscopic theory of nuclear fission*, PoS(INPC2016)225, the 26th International Nuclear Physics Conference, Adelaide, Australia, Sep. 11-16, 2016
  - A. Bulgac, S. Jin, P. Magierski, K.J. Roche, and I. Stetcu, *Induced fission of* ^{240}*Pu*, the 6th International Conference on Fission and Properties of Neutron-Rich Nuclei, Sanibel Island, FL, Nov. 6-12, 2016