Po-Hsun Tseng (曾柏勳)

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EDUCATION

Ph.D. in Computational Physics National Taiwan University, Taiwan
08/2016 - 06/2022

- Extended GAMER, a hybrid GPU/OpenMP/MPI parallelization finite-volume program solving the hydrodynamic equations, from non-relativistic to relativistic regime.
- Developed and implemented a new algorithm for special relativistic hydrodynamics in C/CUDA to reduce numerical error in the finite-volume method and published in Monthly Notices of the Royal Astronomical Society 2021 Vol. 504, pp. 3298-3315 afterward.
- Designed another new numerical scheme that adaptively and locally reduces the so-called min-mod coefficient in the finite-volume method to promote numerical stability. The new approach was soon adopted by the research team led by Prof. Kuo-Chun Pan served at National Tsing-Hua University.
- Built NIS, NFS, and Linux clusters for GPU computations from scratch with colleagues.

SKILLS

Finite-volume methods, Numerically solving partial differential equations (hyperbolic, elliptic), Fast-Fourier transform, Bash, Linux operations, Git, Vim, Gdb, Valgrind

PROGRAMMING LANGUAGES & Libraries

C, OpenMP, Python, CUDA, MPI (in descending order of familiarity)

WORK HISTORY

- **Circuit designer**
  TDK Corporation, Singapore
  01/2015 - 02/2016
  - Developed SAW (surface acoustic wave) filters for wireless communication applications (e.g., mobile and TV).
  - Used in-house and commercial (HFSS) tools on Linux workstation to design and simulate circuits based on the transduction of acoustic waves.
  - Support of product sales in technical aspects.
- **Military service**
  08/2013 - 08/2014

EDUCATION

- **M.Sc. in Physics** National Taiwan University, Taiwan
  09/2011 - 07/2013
- **B.Sc. in Mathematics** National Central University, Taiwan
  09/2006 - 07/2011

PUBLICATIONS

[1] An adaptive mesh, GPU-accelerated, and error minimized special relativistic hydrodynamics code
Po-Hsun Tseng, Hsi-Yu Schive, Tzihong Chiueh
Monthly Notices of the Royal Astronomical Society 2021 Vol. 504, pp. 3298-3315
DOI: (https://doi.org/10.1093/mnras/stab1006) Full-text: (https://tinyurl.com/3w35v8pu)

[2] The symmetry problem of the Fermi and eROSITA bubbles: A proof-of-concept study
Po-Hsun Tseng, Hsiang-Yi Karen Yang, Hsi-Yu Schive, Tzihong Chiueh
preprint 2022

REFERENCES

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