

# Po-Hsun Tseng (曾柏勳)

<https://github.com/zengbs>

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## EDUCATION

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**Ph.D. in Computational Physics** National Taiwan University, Taiwan

08/2016 - 06/2022

- Developed a new algorithm for special relativistic hydrodynamics in C/CUDA to reduce numerical error, compared to conventional algorithms, in the finite-volume method. Published in Monthly Notices of the Royal Astronomical Society 2021 Vol. 504, pp. 3298-3315
- A contributor of the GAMER, a hybrid GPU/OpenMPI/OpenMP finite-volume program for relativistic hydrodynamic simulations
- Designed a new approach to further promote the robustness of finite-volume program (GAMER) for research. The new approach was adopted in the research project led by Dr. Kuo-Chuan Pan from Tsing Hua University.
- Built NIS, NFS, and Linux clusters from scratch with colleagues.

## SKILLS

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

## PROGRAMMING LANGUAGES & Libraries

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

## WORK HISTORY

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- **Circuit designer**  
TDK Corporation, Singapore  
01/2015 - 02/2016
- **Military service**  
08/2013 - 08/2014

## EDUCATION

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- **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

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- [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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### **Dr. Tzihong Chiueh (advisor)**

Distinguished Professor, Institute of Astrophysics, National Taiwan University Taipei  
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### **Dr. Hsi-Yu Schive**

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### **Dr. Hsiang-Yi Karen Yang**

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