

# Pengcheng Li (李鹏程)



## Personal

Basic: 1992/07/27; born at Gao'an city, Jiangxi Province, P.R. China.

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## Positions

- 03/2023–present Assistant Professor, Department of Mathematics, School of Sciences, **Great Bay University**.
- 03/2021–02/2023 Postdoctor, Department of Mathematics, **Southern University of Science and Technology**; supervisor: Yifei, Zhu (朱一飞).
- 09/2020–01/2021 Visiting Research Fellow, Center for Topology and Geometry based Technologies, **Hebei Normal University**; supervisor: Jie Wu (吴杰).

## Education

- 09/2015–06/2020 M.S.-Ph.D. in Pure Mathematics, Academy of Mathematics and Systems Science (AMSS), **University of Chinese Academy of Sciences (UCAS)**; supervisor: Jianzhong Pan (潘建中).
- 09/2011–07/2015 B.S. in Mathematics and Applied Mathematics, School of Mathematical Science, **Dalian University of Technology**.

## Research Interests

My research field lies in **algebraic topology**; I am particularly interested in the homotopy theory of  $(n-1)$ -connected  $(n+2)$ -dimensional finite CW-complexes ( $A_n^2$ -complexes), modular cohomotopy theory, homotopy types of manifolds.

## Publications

My ResearchGate is [Pengcheng-Li-3](#), MR author ID is [1326070](#), ORCID is [0000-0003-3845-3796](#), and Web of Science ResearcherID is [GPF-5329-2022](#).

## Published or accepted articles

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6. **Pengcheng Li**, Zhongjian Zhu\*, *The Homotopy Decomposition of the Suspension of a non-simply-connected 5-manifold*, to appear in **Proceedings of the Royal Society of Edinburgh Section A: Mathematics**. DOI:10.1017/prm.2024.49.
5. **Pengcheng Li**\*. *Homotopy types of suspended 4-manifolds*, to appear in **Algebraic and Geometric Topology**. arXiv: 2211.12741.
4. **Pengcheng Li**, Jianzhong Pan, and Jie Wu\*. *On Modular Cohomotopy Groups*, **Israel Journal of Mathematics**, vol. 253, 2023: 887-915. DOI: 10.1007/s11856-022-2409-0.
3. **Pengcheng Li**\*. *Self-closeness numbers of product spaces*, **Homology, Homotopy and Applications**, vol. 25 (1), 2023: 249-264. DOI:10.4310/HHA.2023.v25.n1.a13.
2. **Pengcheng Li**\*. *(Co)Homology self-closeness numbers of simply-connected spaces*, **Homology, Homotopy and Applications**, vol. 23(1), 2020: 1-16. DOI: 10.4310/HHA.2021.v23.n1.a1.
1. Zhongjian Zhu, Pengcheng Li and Jianzhong Pan. *Periodic problem on homotopy groups of Chang complexes  $C_r^{n+2,r}$* , **Homology, Homotopy and Applications**, vol. 21(2), 2019: 363-375. DOI: 10.4310/HHA.2019.v21.n2.a20.

## Preprints

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3. **Pengcheng Li** and Zhongjian Zhu, *Suspension Homotopy of  $(n - 1)$ -connected  $(2n + 2)$ -dimensional Poincaré Duality Complexes*, arXiv: 2306.12869.
2. Ruizhi Huang, Pengcheng Li\*, *Suspension homotopy of simply-connected 7-manifolds*, arXiv: 2208.13145.
1. **Pengcheng Li**\*, *Homotopy classification of maps between  $A_n^2$ -complexes and applications in self-homotopy equivalences*, arXiv: 2008.03049.

## Grants and Awards

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|-----------------|---|
| 01/2022–12/2023 | The Young Scientists Program of National Natural Science Foundation of China, Grant no. 12101290: “The homotopy theory of $(n - 1)$ -connected $(n + 2)$ -dimensional CW-complexes and its applications in geometry and physics”. |
| 06/2021–03/2023 | The fellowship of China Postdoctoral Science Foundation (Grant no. 2021M691441).  |
| 2020            | Zhu-Li yuehua Outstanding Doctoral Scholarship (non-western), UCAS.   |
| 2017            | Amy scholarship Excellence Award, AMSS, UCAS.   |
| 2015            | Outstanding Ph. D. Student Entrance Scholarship of AMSS, UCAS.  |

## Presentations on conferences or workshops

Workshop: Advances in Homotopy theory, I & II

Speaker for the Workshop I, *Modular cohomotopy and cohomology*.

Organizers: The Southampton Centre for Geometry, Topology and Applications (CGTA) and the Beijing Institute of Mathematical Sciences and Applications (BIMSA); online.

Time: I on September 15–17, 2021; II on May 2–4, 2022.

## Teaching

Teaching Assistant:

- Linear Algebra (MA113), Autumn 2022, instructor: Xuli Han (韩旭里), Southern University of Science and Technology.

Instructor, Great Bay University:

- Introduction to Topology.