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Liangzi Deng

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Education:

B.S.	Wuhan University, China		2006 – 2009
Ph.D.	University of Houston, TX	Ph.D. Advisor: Ching-Wu Chu	2009 – 2015

Employment History:

Assistant Professor, University of Houston	2024 – Present
Research Assistant Professor, University of Houston	2020 – 2024
Research Associate II, University of Houston	2018 – 2020
Postdoctoral Fellow, University of Houston	2015 – 2018

Awards and Honors:

- Materials Research Society Outstanding Early Career Researcher Award 2024
- Robert A. Welch Endowed Professorship, Welch Foundation and TcSUH 2024
- Recognized as a University of Houston 50-in-5 Scholar 2019 and 2021

Synergistic Activities:

- Serving on the editorial board of *Frontiers in Electronic Materials* 2021 – Present
- Executive guest editor of
  "Roadmap to Next Breakthroughs in Superconductivity" in *Next Materials* 2023 – 2024
  "Physics under High Pressure" in *Materials Today Physics* 2022 – 2023
  "Paths to high-temperature superconductivity with or without pressure" in *Frontiers* 2021 – 2022
- Organizer of Superconductivity Symposium in MRS Spring Meeting
  "Symposium QT04: Superconducting Materials" 2024
  "Symposium NM01: Superconductors as Quantum Materials" 2021

Recent Research Highlights:

- Developed and demonstrated successfully a pressure-quenching protocol (PQP) to retain phases at ambient pressure with desired properties induced/enhanced by high pressure with profound implications for high-temperature superconductivity/room-temperature superconductivity science and technology and beyond.
- Discovered a common superconducting T_c resurgence and a large T_c enhancement of the BSCCO family to beyond the maximum T_cs predicted by the universal relation between T_c and doping (p) or pressure (P) under P, which suggests that higher T_cs can be achieved by breaking away from the universal T_c-P relation through the application of higher pressures.
- Successfully enhanced the skyrmion phase region from the small range of 55 to 58.5 K to 5 to 300 K in single-crystalline Cu_2OSeO_3 by applying pressures up to 42 GPa through a series of phase transitions, providing a paradigm to expand skymion phase region and suggesting the insensitivity of skyrmions to the underlying crystal lattices.

Five Selected Publications/Link to full list via Google Scholar (Total: 73 publications, 2775 citations):

https://scholar.google.com/citations?hl=en&user=Pb_8DJ8AAAAJ&view_op=list_works&sortby=pubdate

(#: co-first author, *: co-corresponding author)

1. Liangzi Deng* *et al.*, "Effect of Fermi surface topology change on the Kagome superconductor $CeRu_2$ under pressure", *Mater. Today Phys.* 40, 101322 (2024).

2. H. M. Zhang#, Q. X. Liu#, Liangzi Deng# *et al.*, "Room-Temperature Ferromagnetism in Epitaxial Bilayer FeSb/$SrTiO_3$(001) Terminated with a Kagome Lattice", *Nano Lett.* 24, 122 (2023).

3. Liangzi Deng* *et al.*, "Pressure-induced high-temperature superconductivity retained without pressure in FeSe single crystals", *Proc. Natl. Acad. Sci. USA* 118, e2108938118 (2021).

4. Liangzi Deng#, H. C. Wu# *et al.*, "Room-temperature skyrmion phase in bulk Cu_2OSeO_3 under high pressures", *Proc. Natl. Acad. Sci. USA* 117, 8783 (2020).

5. Liangzi Deng *et al.*, "Higher superconducting transition temperature by breaking the universal pressure relation", *Proc. Natl. Acad. Sci. USA* 116, 2004 (2019).