

Xinyang Che

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RESEARCH FOCUS

Energy System Modeling, Climate Policy, Emerging Low-carbon Technologies

EDUCATION

The City University of New York, New York, US 2025.6 -
Research Assistant in **Deep Policy Lab**, Baruch College, supervised by **Gang He**
Direction: Climate policy, power system decarbonization

King's College London, London, UK 2024.3 - 2025.4
Visiting student in Engineering, Faculty of Natural, Mathematical & Engineering Sciences
Research Assistant in **STAR Lab**, Dept. of Engineering, supervised by **Wei He**
Direction: Energy system modeling

Xi'an Jiaotong University, Xi'an, China 2022 - 2025
M.Res. in Electronic Information, supervised by **Hong Gao** and **Bo Liu**
Graduated with Distinction, GPA: 90.60/100

Xi'an Jiaotong University, Xi'an, China 2018 - 2022
B.Eng. in Electrical Engineering, supervised by **Zhengchun Du**
GPA: 83.73/100
Core Courses: Linear Algebra (91), Signals and Systems (90), Electronics Practice (89), Advanced Mathematics (88), Complex Analysis & Integral Transformation (94), University Physics (90)

PUBLICATIONS & PRE-PRINTS

Assess Space-Based Solar Power for European-Scale Power System Decarbonization
Xinyang Che, Lijun Liu, Wei He **arXiv (accepted by Joule)**
- Oral Presentation at **3rd PyPSA User Meeting**
- Oral Presentation at **Workshop on Open Modeling Carbon Neutrality of the Power Sector**

Experimental investigation of the uncertainty relation in pre- and postselected systems
Yue Zhang*, **Xinyang Che***, Yuanbang Wei, Rui Tian, Yi-an Li, Miao Zhang, Shuai Li, Bo Liu
PRA 2025

(*: equal contribution)

RESEARCH EXPERIENCES

Energy and Power Systems

Climate Change Impacts on European Energy Systems

Advisor: **Dr. Gang He**, *The City University of New York* Ongoing

- Quantified Europe-wide wind and solar resource potentials for "current" (2020s) and "future" (2050s) climates using multi-model CMIP6.
- Projected national electricity, heating, and cooling demands by coupling historical load data with demographic trajectories and bias-corrected air-temperature projections.
- Integrated supply, demand, and techno-economic assumptions into PyPSA-Eur model and optimized different strategies for mitigating energy drought events.

Assess Space-Based Solar Power for European-Scale Power System Decarbonization

Advisor: **Dr. Wei He**, *King's College London* 2024.3 - 2025.4

- Modelled 2 advanced Space-Based Solar Power (SBSP) designs and 2050's European power system (PyPSA), combined them for optimization.
- Demonstrated future feasibility of SBSP, achieving a 7-15% reduction in total system costs, an 83% decrease in terrestrial wind and solar installed capacity, and a 78% reduction in battery storage usage.
- Pinpointed the capital cost benchmarks at which SBSP transitions from a cost-prohibitive, to supplementary, further to a dominant baseload technology through extensive sensitivity analyses.

Normal Form Approximation for Nonlinear Power Systems

Advisor: Prof. Zhengchun Du, Xi'an Jiaotong University 2021.11 - 2022.6

- Performed power flow calculations and transient stability analysis of a single-machine infinite bus system on PSASP, and concluded that the generator power angles are gradually diminishing.
- Conducted a normal form approximation analysis on a generator model, selecting different orders for polynomial approximation modeling.
- Reduced the error from 0.99 percent to 0.07 percent by innovatively using normalized approximation compared to the conventional method, validating the method's effectiveness under different orders.

Linear Optical Simulation in Physics

Experimental Investigation of the Uncertainty Relation in Pre- and Postselected Systems

Advisor: Prof. Bo Liu, Xi'an Jiaotong University 2023.11 - 2024.12

- Innovatively simulated a linear optical system on an experimental platform, and successfully verified the uncertainty relations in pre- and postselected systems (PPS) by introducing weak measurements.
- Designed an experimental plan and optical path, achieved 4 steps of initial state preparation, weak coupling, post-selection, and pointer measurement through different combinations of experimental instruments such as half-wave plates, beam displacers (BD), polarizing beam splitters (PBS).

PROFESSIONAL EXPERIENCES

Ankang Hydropower Station

Operations Department 2021.7 - 2021.8

- Operated critical equipment, including switchyards, circuit breakers, and main transformer rooms.
- Conducted equipment inspections and monitored load flow, transformer temperatures, and efficiency.
- Analyzed voltage stability and supported troubleshooting to ensure smooth operation.

SELECTED AWARDS

- 2024** Master's Academic Scholarship from Xi'an Jiaotong University
- 2023** Master's Academic Scholarship from Xi'an Jiaotong University
- 2022** Excellent Award in the "Tengfei Cup" Innovation and Entrepreneurship Competition
- 2022** Master's Freshman Scholarship from Xi'an Jiaotong University
- 2019** Xi'an Jiaotong University Scholarship

MEDIA COVERAGE & PRESENTATIONS

- 2025** Oral Presentation: 3rd PyPSA User Meeting, Online
- 2025** Oral Presentation: Workshop on Open Modeling Carbon Neutrality of the Power Sector, Xi'an

SKILLS

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| Programming Languages and Skills | C, Python, Matlab, PSCAD, LaTeX, SolidWorks |
| Languages | Mandarin (Native), English (Fluent) |