

# Joint Ph.D. Student Applicant

## ZUN GUO

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## Personal Information

First Name:	Zun	Last Name:	Guo
Date of Birth:	March 28 <sup>th</sup> , 1993	Nationality:	People's Republic of China
Gender:	Male	Marital:	Single

## Education

- ◆ **Ph.D. Candidate** in Electrical Engineering & Successive Postgraduate and Doctoral Program Student, 09/2016-Current  
School of Electrical & Electronic Engineering, NCEPU, Beijing, China  
Advisor: Professor Gengyin Li, Academic Ranking: 13/56
- ◆ **Master Candidate** in Electric Power System and Automation, 09/2014-06/2016  
School of Electrical & Electronic Engineering, NCEPU, Beijing, China  
Advisor: Professor Gengyin Li, Academic Ranking: 31/148
- ◆ **Bachelor** of Engineering in Electrical Engineering and Its Automation, 09/2009-06-2013  
School of Electrical Engineering, Northeast Electric Power University (NEPU), Jilin, Jilin, China  
Academic Ranking: 35/482  
Thesis: Active Power Dispatching Based on DC Power Flow and Network Loss Analysis

## Research Interests

Optimal planning, operation and control of renewable integrated energy system, integrated demand response, smart grid, microgrid

## Research Projects & Experience

- Research on Supply and Demand Friendly Interaction System Between Urban Users and Power Grids (National Key Research & Development Program of China, 07/2016-06/2020)

**Main Researcher** of Sub-project 1: Research on Interactive Mechanism and Model of Supply and Demand Between Urban Users and Power Grids Under Electricity Market Competition Mechanism (Keywords: Electricity Market, Power Consumption Behavior, Interaction)

- ✧ *Study on modeling of interaction between multi-dimensional users and power grid under competitive market mechanisms, various time scales, different types of resources (**Simulation**: Matlab, YALMIP, CPLEX/GUROBI)*
- ✧ *Study on supply-demand interaction optimal model with multiple goals of decreasing electricity consumption, reducing peak-valley difference of the grid and maximizing the user's profit (**Simulation**: Matlab, YALMIP, CPLEX/GUROBI, NSGA-II)*

- **Main Researcher** of Research on Smart Demand Response Dispatching, Operation Mode and Incentive Mechanism (The National Natural Science Foundation Project of China, 01/2016-12/2019) (Keywords: Smart Grid, Demand Response, Dispatching and Operation Mode)

- ✧ *Study on demand response aggregation modeling in energy market and reserve market (**Simulation**: Matlab, YALMIP, CPLEX/GUROBI/fmincon)*
- ✧ *Study on scenario-based or CVaR-based mixed-integer linear programming model for joint generation and load scheduling considering stochastic wind power, PV generation and demand response (**Simulation**: Matlab, GAMS, YALMIP, CPLEX/GUROBI/IPOPT, Monte Carlo, Latin Hypercube Sampling)*

- **Team Leader** of Research on Coordinated Configuration and Planning for Flexible Resources in Power System (Technology Project of State Grid Zhejiang Electric Power Company, 01/2018-12/2019) (Keywords: Flexible Resources, Flexibility Evaluation Index, Configuration)

- ✧ *Organization and coordination among project participants and work*
- ✧ *Study on definition, modeling and evaluation method of flexibility in power system*
- ✧ *Study on multi-objective optimal planning model of flexible resources (**Simulation**: Matlab, YALMIP, AMPL, NSGA-II)*

- **Researcher** of Research on Influence of Intermittent Power Supply on Power Grid Security and Countermeasures (Technology Project of State Grid Zhejiang Electric Power Company, 01/2015-12/2015) (Keywords: Wind Power, PV, Small Signal Stability, Voltage Stability, Transient Stability)

- ✧ *Study on mathematical and PSD-BPA-based modeling of wind power and PV generation in different scales (**Simulation**: PSD-BPA, Excel)*
- ✧ *Study on small signal probabilistic stability analysis approach for practical power system integrated with wind power (**Simulation**: PSD-BPA, Matlab, Monte Carlo)*

## Journal Articles

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- Zun Guo, Gengyin Li, Ming Zhou, Zuofeng Li. Optimal operation of energy hub in business park considering integrated demand response (in Chinese). Published by *Power System Technology (indexed by EI)*, DOI: 10.13335/j.1000-3673.pst.2018.0452.
- Zun Guo, Gengyin Li, Ming Zhou. Integrated community energy system optimal configuration approach and Beijing Daxing International Airport application considering integrated demand response (in English). Submitted to *Applied Energy (indexed by SCI)*.
- Zun Guo, Shangrun Yao, Jiting Gu, Chenbo Xu, Gengyin Li, Ming Zhou. Bi-level optimal scheduling of demand response integrated energy hub through cost and exergy assessments (in English). Accepted by the 2<sup>nd</sup> IEEE Conference on Energy Internet and Energy System Integration (paper will be *indexed by EI*, the conference will be held on October 20-22, 2018 in Beijing, China).

## Major Awards & Honors

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- Outstanding Graduate Student Cadre (as monitor), NCEPU (2016-2017)
- Excellent League members, NCEPU (2014-2015, 2016-2017)
- Second Prize Scholarship, NCEPU (2015-2016)
- Second Prize Scholarship, Excellent League Member, Advanced Class (as commissary in charge of organization and lecturer), NCEPU (2014-2015)
- Second Prize Scholarship, Innovative Scholarship, Excellent Student Cadre (as study secretary), NEPU (2009-2013)

## Practical Experience

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- ❖ Responsible person for whole reception of IEEE Fellow Mark O'Malley's academic lecture at NCEPU (14/10/2016-15/10/2016)
- ❖ Deputy director of Survey Department of Postgraduate Students' Association, NCEPU (2015-2016)
- ❖ Assist in *Study on Condition Evaluation of 1000kV AC Ultra High Voltage Electrical Main Equipment* developed by State Grid Shanxi Electric Power Company Maintenance Branch (07/2013)
- ❖ Learning in *Capacitive Equipment Insulation Online Monitoring System* project organized by College of Electrical and Power Engineering of Taiyuan University of Technology (07/2012)
- ❖ Support education at Wanghu Village Primary School in Guojiabao Town, Yuci District, Jinzhong City, Shanxi Province, mainly on English and computer teaching (08/2011)

## Abilities & Comprehensive Qualities

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- A. Outstanding English ability

- ✓ GRE: **320** (Verbal Reasoning 153, Quantitative Reasoning 167, Analytical Writing 3.5) (07/2013)
- ✓ IELTS: Overall **7.0** (Reading 8.0, Listening 7.0, Writing 5.5, Speaking 6.5) (08/2013)
- ✓ College English Test Band 6: 510
- ✓ Skillful in writing, translating, interpreting and presentation

B. Strong Computer Capability

- ✓ Proficient in Matlab programming, YALMIP, AMPL, GAMS, CPLEX, GUROBI, Word, Powerpoint, Excel
- ✓ Skilled in PSD-BPA, PSCAD, Python

C. Comprehensive Qualities

- ✓ Superior snooker player (won the second place in school-level competition, NCEPU, 2016)
- ✓ Excellent basketball player
- ✓ Excellent singer