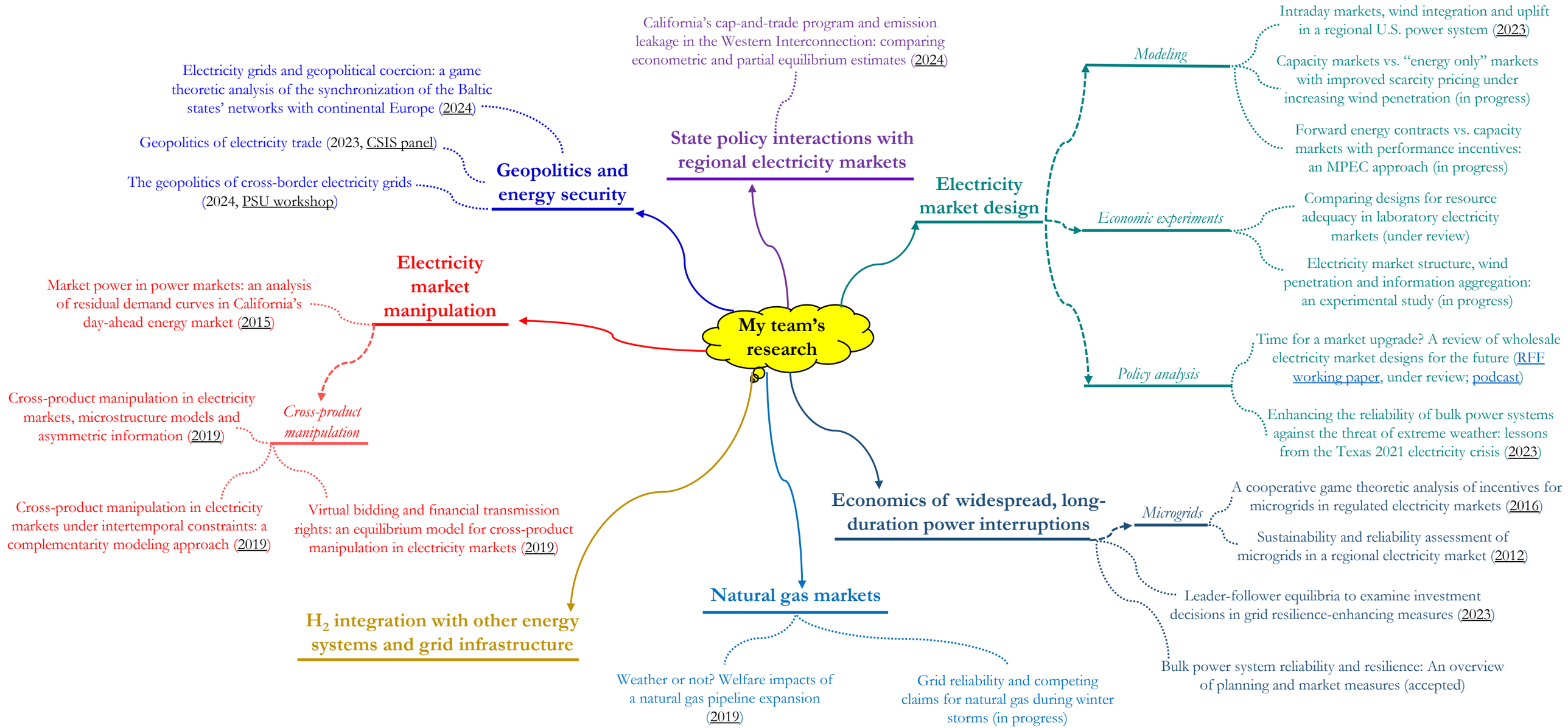
My team's research
Geopolitics and energy security
Electricity grids and geopolitical coercion: a game theoretic analysis of the synchronization of the Baltic states' networks with continental Europe (2024)
Geopolitics of electricity trade (2023, CSIS panel)
The geopolitics of cross-border electricity grids (2024, PSU workshop)
State policy interactions with regional electricity markets
California's cap-and-trade program and emission leakage in the Western Interconnection: comparing econometric and partial equilibrium estimates (2024)
Electricity market design
Modeling
Intraday markets, wind integration and uplift in a regional U.S. power system (2023)
Capacity markets vs. "energy only" markets with improved scarcity pricing under increasing wind penetration (in progress)
Forward energy contracts vs. capacity markets with performance incentives: an MPEC approach (in progress)
Economic experiments
Comparing designs for resource adequacy in laboratory electricity markets (under review)
Electricity market structure, wind penetration and information aggregation: an experimental study (in progress)
Policy analysis
Time for a market upgrade? A review of wholesale electricity market designs for the future (RFF working paper, under review; podcast)
Enhancing the reliability of bulk power systems against the threat of extreme weather: lessons from the Texas 2021 electricity crisis (2023)
Electricity market manipulation
Market power in power markets: an analysis of residual demand curves in California's day-ahead energy market (2015)
Cross-product manipulation
Cross-product manipulation in electricity markets, microstructure models and asymmetric information (2019)
Cross-product manipulation in electricity markets under intertemporal constraints: a complementarity modeling approach (2019)
Virtual bidding and financial transmission rights: an equilibrium model for cross-product manipulation in electricity markets (2019)
Economics of widespread, long-duration power interruptions
Microgrids
A cooperative game theoretic analysis of incentives for microgrids in regulated electricity markets (2016)
Sustainability and reliability assessment of microgrids in a regional electricity market (2012)
Leader-follower equilibria to examine investment decisions in grid resilience-enhancing measures (2023)
Bulk power system reliability and resilience: An overview of planning and market measures (accepted)
Natural gas markets
Weather or not? Welfare impacts of a natural gas pipeline expansion (2019)
Grid reliability and competing claims for natural gas during winter storms (in progress)
H_2 integration with other energy systems and grid infrastructure