



Prof. Robert Pilawa-Podgurski, Director and Acting Executive Director



Prof. Jessica Boles, Co-Director and Principal Investigator in Power Electronics



Prof. Duncan Callaway, Principal Investigator in Power Systems



Prof. Emeritus Seth Sanders, Principal Investigator in Power Electronics



Dr. Sascha von Meier, Principal Investigator in Power Systems



Prof. Costas Spanos, Principal Investigator in Building Energy Efficiency

BPEC Mission

The mission of the Berkeley Power and Energy Center is to further research and education in the power and energy area through engagement with industry. We seek to create an ecosystem where leading academic researchers and top industry partners can share and exchange ideas in pre-competitive research areas, advance the frontier of technology, and help educate the next generation of technology leaders.

Member Benefits

- Shared Intellectual Property (IP) rights to all BPEC inventions
- Representation on Industrial Advisory Board (IAB)
- Opportunity to direct funding to specific projects
- Opportunity to partner with BPEC researchers on federally funded research projects
- Attendance at annual research review meetings at UC Berkeley campus
- Early access to inventions and pre-publications
- Opportunity to send Visiting Industrial Fellow to BPEC
- Access to students and faculty for research discussions and visits
- Resume book for all BPEC graduate and undergraduate students
- Access to regular BPEC research presentations and webinars
- Educational tutorials on topics of interest to industry

Research Programs

The BPEC principal investigators and students focus on research in the areas of power electronics, power systems, and the interface between the two. We seek to address difficult technical challenges with broad societal impact, and work along industry partners to ensure that the research has long-term commercial relevance and an eventual path to industry adoption. Compared to industry R&D labs, our work has a longer time horizon, where we pursue radically new ideas and approaches with higher risk, but potentially also higher returns.

Power Components and Devices

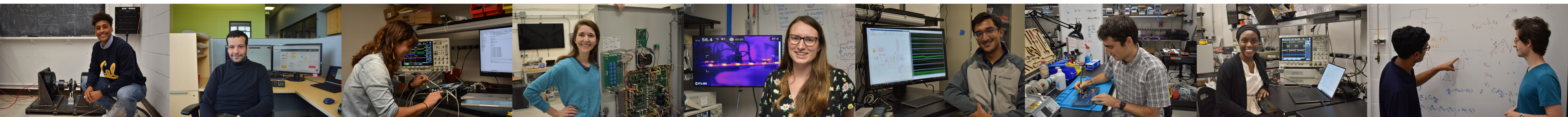
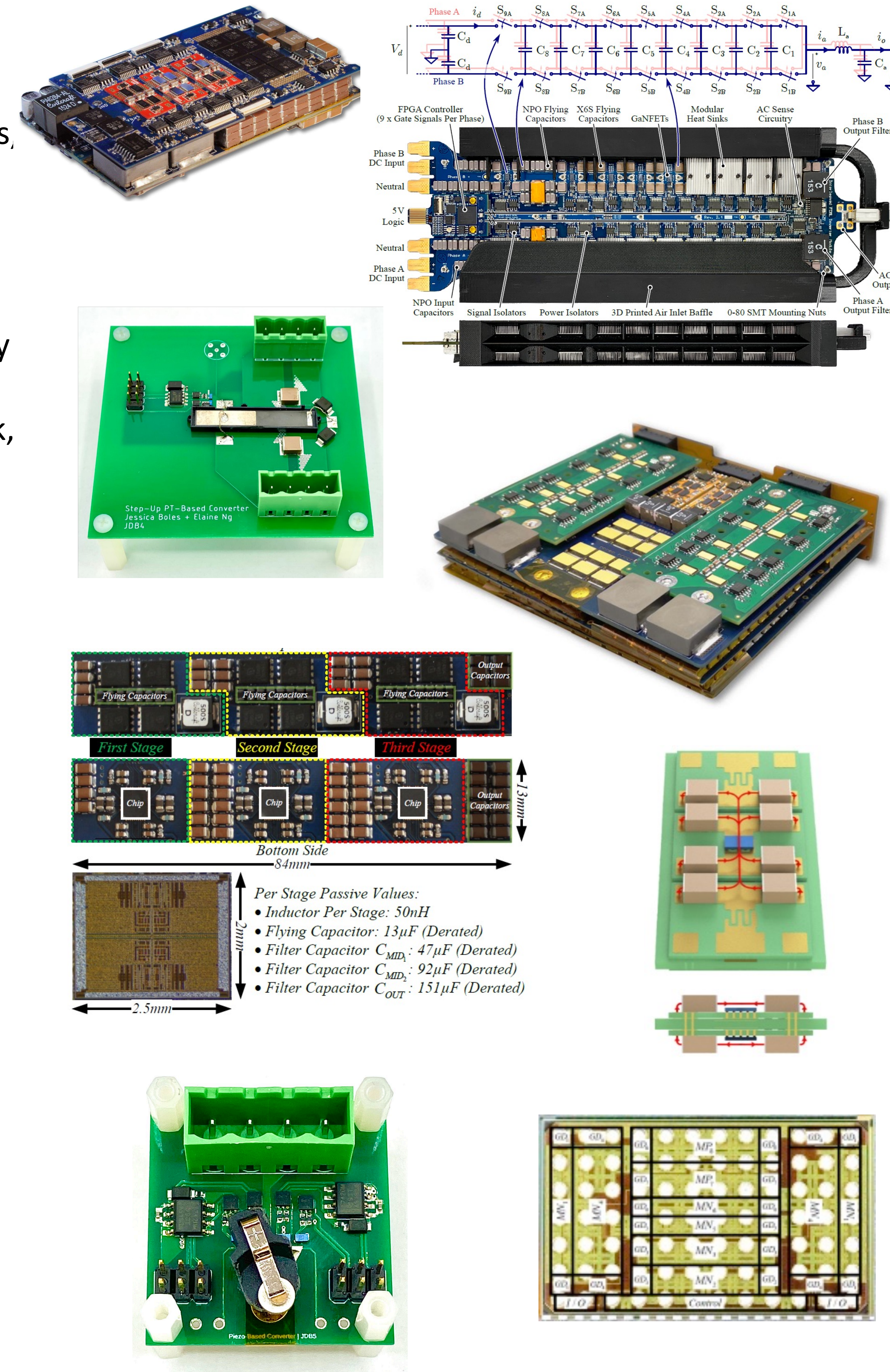
We explore the development and use of new active and passive devices for power conversion, such as piezoelectrics, wide band-gap semiconductors and bi-directional switches, advanced capacitors and magnetics, fully integrated CMOS power management, and new thermal management and packaging of power components.

Circuit Topologies and Control

To make the best use of emerging power devices, we develop new circuit topologies and control techniques to increase power density, efficiency, and other metrics of performance, validated in high performance hardware prototypes.

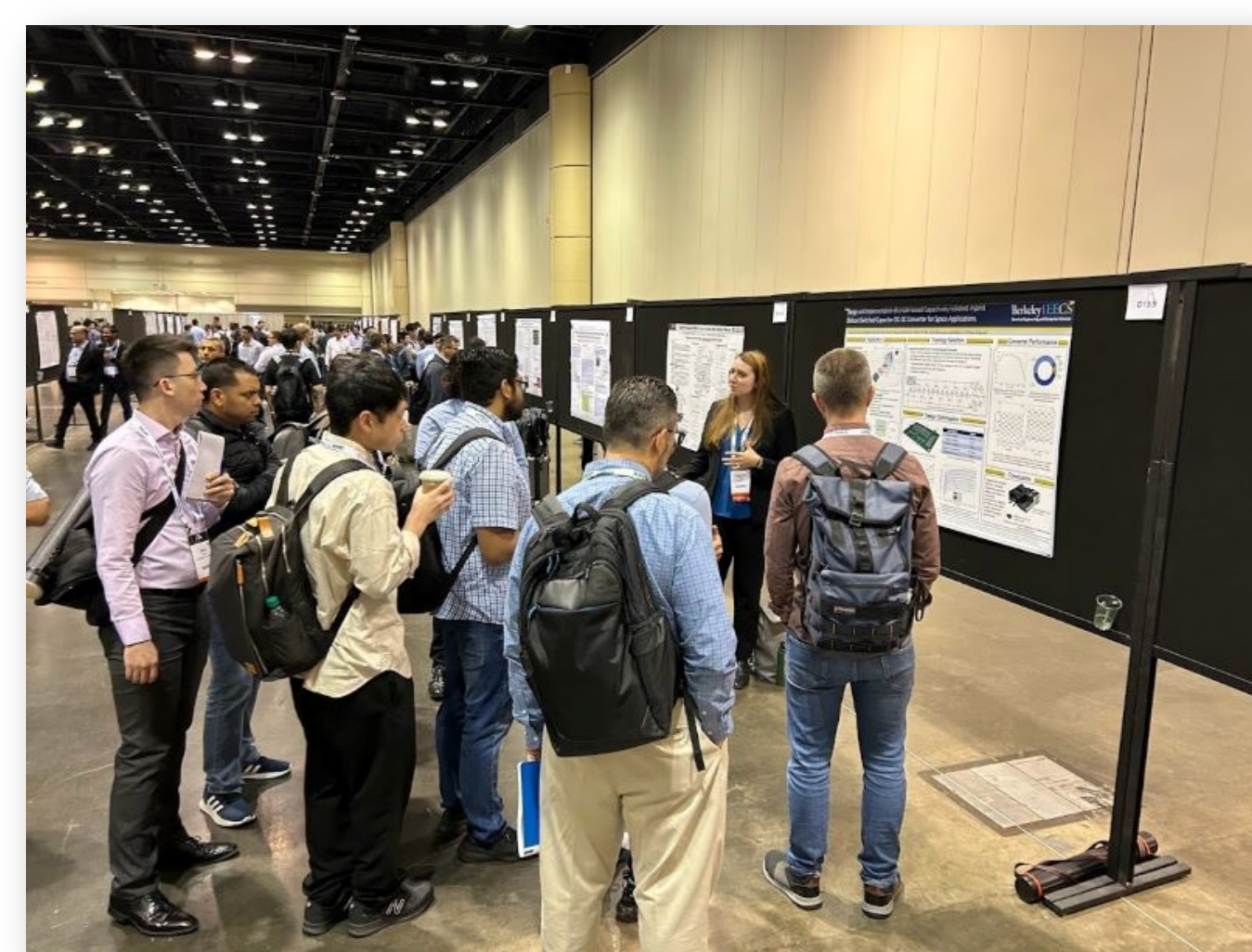
Grid Integration – Systems and Technologies

We investigate new technologies for widespread integration of renewable energy, battery storage, and other power electronics sources and loads. Ranging from low-level power converter control to distribution and transmission systems, we seek to enable a sustainable future electric grid.



Annual Research Review Meeting

Each spring a review meeting is held at the UC Berkeley campus for BPEC sponsors, faculty, and students. This meeting focuses on technical exchanges, including student and faculty presentations, poster sessions, invited keynotes, and laboratory tours. The meeting represents a unique networking and educational opportunity for power and energy professionals in the Bay Area and beyond.



Educational Activities

Professional development: BPEC members receive access to professional development material, including tutorials on emerging power/energy technologies. In addition to in-person attendance on campus, an unlimited number of participants can attend virtually and access recorded material.

Workforce development: We work closely with industry members to ensure that the undergraduate and graduate power/energy courses at UC Berkeley align with industry needs. BPEC members are encouraged to partner with us to develop laboratory modules and other course material that help prepare BPEC graduates for an exciting career in the power and energy field.



Electric Transportation, Charging Infrastructure, and Space Applications

Datacenter, Consumer Electronics, and Power Management Integrated Circuits

Renewables, Storage, and Grid-Connected Systems

Recruitment/Internships

Graduate student internships at membership companies are encouraged and facilitated on a summer or semester-basis. This provides valuable technology transfer and recruitment benefits. Internship and full-time position postings at membership companies are distributed to all BPEC students, and member companies are provided with a detailed resume book, student project listing, and expected graduation dates for all students and post-docs.

Sponsor Contributions

The funds contributed by BPEC sponsors are used to provide:

- Graduate Student Research (GSR) Assistantship and tuition support for BPEC students
- Undergraduate student research scholarships
- Power/energy educational course support
- Laboratory equipment and supplies
- Funds for BPEC administrative staff, annual review meeting, conference attendance, and general expenses to support and promote the program.

Membership Levels

- Regular Member: \$60,000 annually
- Collaborative Member (CM): \$160,000 annually
 - Ability to directly support a project in area of interest to sponsor
- Additional CM projects, \$100,000 annually

Administrative Contact

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