

# CALL FOR PAPERS

# ISLPED 2022

## INTERNATIONAL SYMPOSIUM ON LOW POWER ELECTRONICS AND DESIGN

<http://www.islped.org>



hybrid Zoom/Boston, MA, USA

August 1 – 3, 2022



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Pending sponsorship by the **ACM Special Interest Group on Design Automation (SIGDA)**, the **IEEE Circuits and Systems Society (CASS)** and the **IEEE Council on Electronic Design Automation (CEDA)**.

The International Symposium on Low Power Electronics and Design (ISLPED) is the premier forum for presentation of innovative research in all aspects of low power electronics and design, ranging from process technologies and analog/digital circuits, simulation and synthesis tools, system-level design, and optimization, to system software and applications. Specific topics include, but are not limited to, the following three main tracks and sub-areas:

1. Technology, Circuits, and Architecture	2. EDA, Systems, and Software
<b>1.1. Technologies</b> Low-power technologies for device, interconnect, logic, memory, 2.5/3D, cooling, harvesting, sensors, optical, printable, biomedical, battery, and alternative energy storage devices and technology enablers for non-Boolean and quantum/quantum-inspired compute models.	<b>2.1. CAD Tools and Methodologies</b> CAD tools and methodologies for low-power and thermal-aware design addressing power estimation, optimization, reliability and variation impact on power, and power-down approaches at all levels of design abstraction: physical, circuit, gate, register transfer, behavior, and algorithm.
<b>1.2. Circuits</b> Low-power circuits for logic, memory, reliability, clocking, resiliency, near-/sub-threshold, and assist schemes; Low-power analog/mixed-signal circuits for wireless, RF, MEMS, AD/DA Converters, I/O, PLLs/DLLs, imaging and DC-DC converters; Energy-efficient circuits for emerging applications (e.g., biomedical, in-vitro sensing, autonomous), circuits using emerging technologies; Cryogenic circuits.	<b>2.2. Systems and Platforms</b> Low-power, power-aware, and thermal-aware system design including data-center power delivery and cooling, Platforms for SoCs, embedded systems, approximate and brain-inspired computing, Internet-of-Things (IoT), wearable computing, body-area networks, wireless sensor networks, and system-level power implications due to reliability and variability.
<b>1.3. Logic and Architecture</b> Low-power logic and microarchitecture for SoC designs, processor cores (compute, graphics, and other special purpose cores), cache, memory, arithmetic/signal processing, cryptography, variability, asynchronous design, and non-conventional computing.	<b>2.3. Software and Applications</b> Energy-efficient, energy-aware, and thermal-aware software and application design including scheduling and management, power optimizations through HW/SW interactions, and emerging software low-power applications.
3. Crosscutting Themes	
<b>3.1. AI/ML Hardware</b> Low-power AI/ML techniques including approximations, application driven optimizations, in-memory/energy-efficient accelerations, and neuromorphic computing; Efficient AI/ML using emerging technologies (including quantum computing).	
<b>3.2. Hardware and System Security</b> Low-power hardware security primitives (PUF, TRNG, cryptographic/post-quantum cryptographic accelerators), nano-electronics security, supply chain security, IoT security and AI/ML security; Energy-efficient approaches to system security.	
4. Industrial Design Track	
ISLPED'22 solicits papers for an "Industrial Design" track to reinforce interaction between the academic research community and industry. Industrial Design track papers have the same submission deadline as regular papers and should focus on similar topics, but are expected to provide a complementary perspective to academic research by focusing on challenges, solutions, and lessons learnt while implementing industrial-scale designs.	

**Technical Paper Submission Deadlines:** Abstract registration by [March 11<sup>th</sup>, 2022, at 11:59pm PST](#)  
Full paper due by [March 18<sup>th</sup>, 2022, at 11:59pm](#)

**Invited Talk, Panel, and Embedded Tutorial Proposals Deadline:** [April 15, 2022](#)

**Notification of Paper Acceptance:** [May 23, 2022](#)

**Submission of Camera-Ready Papers:** [June 20, 2022](#)

Submissions (not published/accepted/under review by another journal, conference, symposium, or workshop) should be full-length papers of **up to 6 pages** (PDF format, double-column, US letter size, using the IEEE Conference format, available at <https://www.ieee.org/conferences/publishing/templates.html>) including all illustrations, tables, references, and an abstract of no more than 250 words. **Submissions must be anonymous.** Submissions failing above requirements will be automatically rejected. More information about paper submission can be found at <http://www.islped.org>. Accepted papers will be submitted to the IEEE Xplore Digital Library and the ACM Digital Library. ISLPED'22 will present three Best Paper Awards based on the ratings of reviewers and a panel of judges.

**ISLPED also features a Low Power Design Contest** with live demonstrations and awards. Submissions are due on May 18<sup>th</sup>, 2022. For details see the separate call for design contest participation available on the conference web page. There will be several invited talks by industry and academic thought leaders on key issues in low power electronics and design. The Symposium may also include embedded tutorials to provide attendees with the necessary background to follow recent research results, as well as panel discussions on future directions in low power electronics and design. Proposals for invited talks, embedded tutorials, and panels should be sent by email to the ISLPED'20 Technical Program Co-Chairs, Ayşe Coskun ([acoskun@bu.edu](mailto:acoskun@bu.edu)) and Swaroop Ghosh ([szq212@psu.edu](mailto:szq212@psu.edu)) by the deadline listed above.

**Participants interested in exhibiting at the Symposium should contact the General Co-Chairs by May 2, 2022.**