Call for Papers
5th IEEE International Flexible Electronics Technology Conference (IFETC) 2023

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International Flexible Electronics Technology Conference

https://ewh.ieee.org/conf/ifetc/2023

5th IEEE International Flexible Electronics Technology Conference (IFETC) 2023

at DOUBLETREE BY HILTON hotel, San Jose, California, USA

August 14th to August 16th, 2023

Paper submission deadline: February 24th 2023

(*Three-page* Extended Abstract including Text, Figures, Tables, and References)

The 5th IEEE **International Flexible Electronics Technology Conference (IFETC) 2023** is a three-day technical conference to be held at the Silicon Valley **DOUBLETREE BY HILTON** hotel at San Jose, California, USA from **August 14th to 16th, 2023**. The IEEE *Electron Devices Society* (EDS) sponsored IFETC is a premier conference for the flexible/printable electronics device technology community. The IFETC provides a unique forum for discussions on broad range of flexible/printable electronics device/manufacturing-related topics including sensors, displays, and in general large area flexible electronics systems. The conference location rotates between North America, Asia, and Europe.

Technical Areas

The FETC 2023 solicits papers in all areas of flexible electronics systems including materials, processes, printing, devices, modeling, reliability, manufacturing and yield, packaging, and applications. Authors *must specify* a topical area based on the detailed descriptions of the *Call-for-Papers* in this flyer during online submission of papers.

Oral and Poster Sessions

The IFETC 2023 will include three days of technical presentations organized into several parallel sessions. The conference will also include poster presentations and live demonstrations. Authors should indicate their preference for oral, poster presentation, or live demonstration format when submitting their abstracts. A *best poster award*, a *best student paper* and *a best paper award* will be presented with the selection based on the quality and presentation of the paper at the conference.

Publications

The IFETC 2023 papers will be subjected to IEEE-EDS standard review processes and IEEE conference publishing guidelines. The accepted papers presented at the meeting will be published in the IFETC 2023 proceedings and may be available on *IEEE Xplore*. Besides, the authors of a selected number of high-impact presented papers will be invited to submit an extended version of the same for consideration of publication in the *IEEE Journal of Flexible Electronics* (J-FLEX). All such submissions must comply with J-FLEX author-guidelines and will be subjected to the standard IEEE and J-FLEX review and publication policy.

Short Courses and Tutorials

The IFETC 2023 will be preceded by several short courses on August 13th, 2023, encompassing the latest advancements in niche application areas of interest, which include flexible and stretchable materials, devices, performance and reliability, manufacturing and yield, and applications. The short courses are focused to provide the attendees the latest ongoing applied research in these areas that will pave the way for the successful realization of flexible and stretchable electronics-based products for consumer applications.

The IFETC 2023 will, also, be preceded by several tutorial sessions on topics ranging from technology translation, integration of advanced technologies such as Artificial Intelligence, Machine Learning, Robotics, and Virtual Reality. These tutorials sessions are designed for students and young engineers in the industry and are intended to offer a comprehensive overview of the topical areas presenting a roadmap of the evolution of flexible electronics ecosystem.

Secretariat

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Papers for presentations at IFETC 2023 are invited in the following topical areas

Materials, Devices, and Processing: Flexible and stretchable materials, transistors, microfluidic, interconnects and other passive/active electronic devices (e.g., antennas, diodes, memories, synapses, and so on), inorganic, organic and nanostructure materials, device structures, simulation and modeling, printing, processing, and characterization; devices on plastic, paper, and bio-degradable substrates are solicited; conventional and unconventional micro/nano fabrication processes (e.g. photolithography, nanoimprinting, soft lithography, etc.) and mechanical structure design for ultra-flexible/stretchable devices, and fiber electronics are of interest; material selection, processes and device architectures for high speed and low power flexible transistors are solicited.

Energy Harvesting and Storage: Flexible and stretchable energy harvesters and storage; photovoltaic, piezoelectric, triboelectric, electromagnetic, thermoelectric and other harvesters, batteries, supercapacitors, and other storage devices; material design and fabrication techniques for high efficiency, high energy/power density harvesting and storage systems integration and power management.

Sensors, Actuators, and Bioelectronics: Flexible sensors and actuators; bio-electronic interfaces and neural interfaces; physical, chemical, and biological sensors based on electrical, electrochemical, mechanical, and optical principles; flexible integrated photonics for sensing; advanced device concepts.

Circuits and Systems Integration: Integration of electronic circuits and systems on flexible substrates; Integration challenges at circuit/system levels for flexible functional systems; analog and digital circuit blocks of thin-film transistors on flexible substrates; aging and process variation compensation; ultra-low power integrated circuit (IC) design including sensing/wireless interface; MCU and power management for wearable or implantable systems; circuit and system designs based on hybrid device technologies to compensate aging or process variations with flexible devices.

Functionalities, Performance, and Reliability: Papers discussing mechanics, modeling, functionalities, performance, and reliability of flexible and stretchable electronic devices, packages, and processes, including numerical, analytical, and statistical modeling and simulation of electronic, optical or hybrid devices, interconnects, integration, parasitic elements, fabrication processes, physical phenomena, mechanical systems, electro-thermal effects, model test structures and methodologies. Reliability of materials, processes, and devices including interconnects, electro-static discharge, latch-up, soft errors, noise and mismatch behavior, user induced mechanical anomalies, test structures and methodologies, defect monitoring and control, electromagnetic robustness, and design-for-reliability also fall under the same category.

Packaging, Heterogeneous Integration, and Manufacturing: Papers include all areas of advanced packaging and package-related manufacturing technologies. Especially, heterogeneous integration technologies such as 2.1D, 2.5D and 3D integrations, flexible hybrid electronics integration, wafer-level packaging, and panel-level packaging are strongly encouraged. Papers on breakthrough technologies in fine-pitch interconnection, package-level wiring, optical/wireless interconnect, power/sensor device packaging, control in thermal-expansion coefficient and thermal management are also recommended. Package design methodology and technique for miniaturization of sub-systems, and the manufacturability of all the technologies above are of course interested. Emerging topics, such as bio-compatible soft package, neuromorphic interconnection, and flexible/bendable package for wearables are very much welcome.

Papers also include all areas of printing (inkjet, aerosol jet, plasma jet, 3D, 4D, bioprinting, roll-to-roll and others) and transfer process, tools, and manufacturing systems with novel sensing technologies, and artificial intelligence and deep-learning algorithms. Process and equipment including process module, process integration and process control, and equipment that improve device performance, reliability, and yield, or enable new products are also solicited

Emerging Applications and Products: System implementations for all types of potential applications including wearable health and therapeutics, implantable, bio-resorbable human–machine interaction, intelligent robotics, structural health monitoring, lab-on-a-chip and internet-of-everything; hybrid integration of multi-materials and components and flexible/stretchable encapsulation techniques for realizing various integration concepts, including e-textiles, e-skin, active matrix biomedical sensors, in-mold electronics and smart-packaging; design and implementation of novel bio-inspired integrated systems.

Papers are also solicited on device technology and systems integration for the development of intelligent machines that work and react like humans through learning – machine learning (ML), that is, all areas of artificial intelligent (AI) and ML.

Papers on technology translation of laboratory/academic innovations and technology transfer stories and challenges for idea to product are highly desirable.

Flexible and Printable Solutions in Radio-Frequency Identification: Papers are solicited on applications of flexible and printable solutions in RFID (radio-frequency identification) and related Electronic and Electromagnetic technologies enabling Internet of Things (IoT). Papers include all areas of flexible/printable-RFID/IoT technologies such as materials, device technology, antennas, and circuits.

The authors must submit the final camera-ready papers of their original unpublished research work online on IFETC 2023 website. The guidelines of the downloadable template must be followed to prepare manuscripts.