



# IEEE International Symposium on Defect and Fault Tolerance in VLSI and Nanotechnology Systems

October 6th - 8th, 2021, Virtual Event

## Call for Papers

DFT is an annual Symposium providing an open forum for presentations in the field of defect and fault tolerance in VLSI and nanotechnology systems inclusive of emerging technologies. One of the unique features of this symposium is to combine new academic research with state-of-the-art industrial data, necessary ingredients for significant advances in this field. All aspects of design, manufacturing, test, reliability, availability, and security that are affected by defects during manufacturing and by faults during system operation are of interest. Topics include (but are not limited to) the following:

- 1. Yield Analysis and Modeling:** Defect/fault analysis and models; statistical yield modeling; diagnosis; critical area and other metrics.
- 2. Testing Techniques:** Built-in self-test; delay fault modeling and diagnosis; testing for analog and mixed circuits; online testing; signal and clock integrity.
- 3. Design for Testability in IC Design:** FPGA, SoC, NoC, ASIC, low power design and micro-processors.
- 4. Error Detection, Correction, and Recovery:** Self-testing and self-checking solutions; error-control coding; fault masking and avoidance; recovery schemes, space/time redundancy; HW/SW techniques; architectural and system-level techniques.
- 5. Dependability Analysis and Validation:** Fault injection techniques and frameworks; dependability and characterization, cross-layer reliability analysis, dependability analysis for AI.
- 6. Repair, Restructuring and Reconfiguration:** Repairable logic; reconfigurable circuit design; DFT for on-line operation; self-healing; reliable FPGA systems.
- 7. Radiation effects:** SEEs on nanotechnologies; modeling of radiation environments; radiation experiments; radiation hardening techniques.
- 8. Defect and Fault Tolerance:** Reliable circuit/system synthesis; fault tolerant processes and design; design space exploration for dependable systems, transient/soft faults.
- 9. Aging and Lifetime Reliability:** Aging characterization and modeling; design and run-time reliability, thermal, and variability management and recovery.
- 10. Dependable Applications and Case Studies:** Methodologies and case studies for IoTs, automotive, railway, avionics and space, autonomous systems, industrial control, fail-safe systems, dependable AI, etc.
- 11. Emerging Technologies:** Techniques for 2.5D/3D ICs, quantum computing architectures, memristors, spintronics, microfluidics, approximate computing, etc.
- 12. Design for Security:** Fault attacks, fault tolerance-based countermeasures, scan-based attacks and countermeasures, hardware trojans, system obfuscation and logic locking, secure AI, security vs. reliability, interaction between VLSI test, trust, and reliability.

**Paper Submission:** authors are invited to submit original and unpublished contributions in the areas described above. Submitted papers should be no longer than 6 pages and adhere to the IEEE conference template, 2-columns style (available on conference web site). Papers can be accepted as regular papers (former oral presentations) or short papers (formerly posters). Both types of paper will be included in the IEEE proceedings; the page limit for proceedings is 6 pages for regular papers and 4 pages for short papers. Please refer to the symposium web page for updated information.

**Call for Special Sessions:** Proposals for Special Sessions are also invited. For more information, visit symposium website and see the specific call.

**Paper Publication:** Only original, unpublished work will be accepted, for oral presentation at the symposium. Proceedings will be published by the IEEE Computer Society and will appear in the Digital Library.

**Author Registration:** Every accepted paper MUST have at least one full paid registration by the time the camera-ready paper is submitted for inclusion in the symposium proceedings, and one of the authors is expected to attend the Symposium and present the paper.

**Venue:** The symposium in its 34th edition and for the second consecutive year will go virtual. Details about the platform will be given in the conference website.

**Journal Special Issue associated with the conference:** All accepted papers would be considered as candidates for the DFT 2021 Best Paper Award. Furthermore, papers presented within the symposium will be invited for a submission in extended version in a special issue/section of an archival journal of the domain.

Prospective authors should adhere to the following deadlines:

<b>Abstract submission:</b>	<b>May 14th, 2021</b>	<b>May 28th, 2021</b>
<b>Full paper submission:</b>	<b>May 28th, 2021</b>	<b>June 11th, 2021</b>
<b>Notification of acceptance:</b>	<b>July 16th, 2021</b>	<b>July 23rd, 2021</b>
<b>Camera ready and author's registration:</b>	<b>July 30th, 2021</b>	<b>September 10th, 2021</b>

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