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# PROCEEDINGS OF SPIE

## ***Metrology, Inspection, and Process Control for Microlithography XXXIII***

**Vladimir A. Ukraintsev**  
**Ofer Adan**  
*Editors*

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## Introduction

The Metrology, Inspection, and Process Control for Microlithography XXXIII conference started with metrology challenges of state of the art silicon based quantum devices. While quantum devices are all about entanglement, quantum was not the only entanglement in the conference. Edge Placement Error (EPE) metrology approaches were presented to address the entanglement between metrology and inspection, and within metrology the entanglement of CD uniformity, roughness, 3D, pattern placement, and overlay errors. Various approaches were presented; from an all in one solution to a heterogeneous fleets of different perspectives of metrology and inspection to novel technologies, fused by artificial intelligence. Artificial intelligence was also studied from the metrological challenges raised by the new devices enabling it. CPU's, GPU's, and TPU's and future solutions all reviewed in invited tutorials you can read about in these Proceedings. As technology nodes shrink and structures become more complex, many novel technologies were introduced, and workhorse ones were improved.

Hopefully these Proceedings become a reference and foundation for future work. This comes with a bigger hope that the readers come back, and submit a paper telling others of novel achievements, and sharing interesting results of scientific merit to keep fueling the conference audience interest.

Dear readers,

Looking forward to seeing your submissions, presented next year on the podium, or interacting with the audience next to your poster.

Thank you.

**Vladimir A. Ukraintsev  
Ofer Adan**

