

## In collaboration with Struck Innovative Systeme GmbH

*Wednesday, 17 September 2025 09:50 (15 minutes)*

Struck Innovative Systeme GmbH, a Hamburg-based leader in board-level electronics, has been at the forefront of innovative solutions for high-energy physics instrumentation for over 30 years. Specializing in particle accelerator large-scale facilities, our focus lies in microwave low-level RF (LLRF) control systems, delivering compact, high-performance board-level products that ensure precise beam stability and synchronization. These solutions, built on advanced xTCA ( $\mu$ TCA/ATCA) architectures, include direct sampling vector modulators (e.g., DS8VM1 MTCA.4 RTM) and FPGA-based digitizers tailored for real-time signal processing in demanding accelerator environments.

Complementing our LLRF portfolio, Struck provides digital data acquisition systems for physics experiments, particularly for detector applications. Our high-speed, high-resolution digitizers and VME interfaces (such as SIS1100e2/SIS3104-2 PCI Express to VME and SIS3153 Ethernet/USB3.0 to VME) enable seamless data capture from radiation detectors, supporting everything from beam monitoring to event reconstruction in collider experiments. These commercial off-the-shelf yet customizable modules leverage state-of-the-art broadband converters and integrated circuits, addressing hardware obsolescence while offering bespoke firmware design and system integration services.

With a proven track record of dedication and reliability, Struck serves a global clientele spanning renowned research institutes (e.g., CERN, DESY) and leading universities worldwide. Our lean, expert team—comprising engineers with deep domain knowledge—drives cutting-edge innovations that push the boundaries of accelerator technology, ensuring scalability, low latency, and robustness for next-generation facilities like the large Collider construction in the future.

This workshop presentation will explore real-world case studies, product demonstrations, and future roadmaps, highlighting how Struck's solutions empower physicists to achieve unprecedented precision in particle acceleration and detection.

**Presenter:** RONG LIU (STRUCK)

**Session Classification:** Session