SOS27: Abstract for session “DevSecOps in HPC: Towards Automatic Deployment and Zero Downtime”

The influence of cloud management and its widely adopted best practices is reshaping how High-Performance Computing (HPC) systems are operated, enabling the application of DevSecOps principles. This session highlights the potential for automation and integration in HPC environments, drawing inspiration from public cloud methodologies to address the unique challenges of scientific and industrial workloads.

The plan for the session is as follows:
The session opens with a talk from a leading public cloud provider, showcasing their in-house technologies and strategies that drive automation, scalability, and zero-downtime operations. Following this, the second presentation focuses on provisioning HPC infrastructure, emphasizing automation's role and immutable infrastructure concepts. The third talk examines service provisioning and automation on top of infrastructure, bridging the gap between resource management and user-facing services. The fourth presentation dives into Identity and Access Management (IAM) security practices integrated with DevOps workflows in large-scale HPC environments, with a focus on machine learning use cases. Concluding with a panel discussion, the session will bring together experts to explore the opportunities and challenges of adopting these practices, offering insights into transforming HPC service and infrastructure management to achieve security, scalability, and operational efficiency.