**The 7th IEEE International Conference on Industrial Cyber-Physical Systems**

**ICPS 2024**

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**Special Session on**

**“Fault Diagnosis and Attack Defense for ICPS”**

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# Call for Papers

Theme: (100 words)

With the rapid growth of the demands on the performance of machines and services, the applications of industrial cyber-physical systems (ICPSs), which integrate the communication, computation, and control technologies, have grown exponentially over the past few decades. The ICPSs build a closed-loop system between cyberspace and physical space through communication networks, enabling state perception, real-time analysis, scientific decision-making, and accurate execution in industrial processes. However, the increasing complexity of ICPSs can make the consequences of a system failure even more severe on the physical layer induced by physical faults. Additionally, the the extensive employment of open communication networks makes ICPSs vulnerable to various malicious cyber-attacks on the cyber layer. In such background, novel fault diagnosis and attack defense approaches, schemes, frameworks, and solutions are required to be applicable to ICPSs. This Special Session welcomes original papers investigating in the areas of physical fault diagnosis and cyber-attack detection and defense for ICPSs from research groups worldwide. This SS also provides a forum to discuss the vital issues, challenges and possible future trends which are closely related to safety measures against physical faults and cyber-attacks.

Topics of interest include, but are not limited to: (A list of 5-10 special areas)

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| 1 | Faults and attacks detection for ICPSs |
| 2 | Secure state estimation |
| 3 | Distributed detection, isolation, and estimation |
| 4 | Secure data transmissions for communication network |
| 5 | Data-driven methods for fault and attack diagnosis |
| 6 | Integration of model-based and data-driven diagnosis methods |
| 7 | Fault-tolerant/Attack-resilient control system design |
| 8 | Integrated fault-tolerant and attack-resilient control system design |
| 9 | Applications to industrial control systems and critical infrastructure |
| 10 |  |

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# IES Technical Committee Sponsoring the Special Session (if any):

IEEE IES TC on “Data-Driven Control and Monitoring”

IEEE IES TC on “Industrial Cyber-Physical Systems”