



**IEEE SMC 2022**  
**International Conference on Systems,  
Man, and Cybernetics**  
Clarion Congress Hotel Prague, Czech Republic  
October 9-12, 2022

## Special Session

Code: 5dx6s

### Title

*Agile and Cooperative Manufacturing based on Automated Guided Vehicles (ACMAGV)*

### Proposer / Main Organizer

*Provide complete address/affiliation, phone, email and biography.*

*The main organizer will be the primary contact person to whom all correspondence will be sent*

***Dariusz Mrozek, Silesian University of Technology***

***Jerry Chun-Wei Lin, Western Norway University of Applied Sciences***

### IEEE Member or SMC Society Member

Dariusz Mrozek, IEEE Senior Member, SMC Member, Secretary of Polish Section of IEEE SMC

Jerry Chun-Wei Lin, IEEE Senior Member, [jerrylin@ieee.org](mailto:jerrylin@ieee.org)

### Category

*Please select one of the following categories:*

- **Systems Science and Engineering**

### Number of Expected Paper Submissions:

9

### Keywords

*See list of topics in the [Call for Papers](#)*

Consumer and Industrial Applications, Communications, Enterprise Information Systems, Robotic Systems, Cooperative Systems and Control, Intelligent Transportation Systems, Application of Artificial Intelligence

### Brief Description and Justification (200-250 words):

*Add a short description (200 to 250 words).*

The growing popularity of Autonomous Guided Vehicles (AGVs), which are used in manufacturing, has not only been the result of their technical features but also their ability to cooperate. Cooperative-based internal logistics enables increased production flexibility. AGVs have become a critical enabling technology for flexible internal logistics required for agile production systems. Modern production systems are characterized by frequent changes that result from orders that are changed by customers, low material buffers, the agile production technologies that are performed by robotized production stands, and the many variants of production technology that can be used. All of the factors mentioned above require the production process to be supported online by highly advanced information services, which are

performed during the successive steps in the production chain. This means that the production activities cannot be centrally planned but have to be performed cooperatively concerning the ongoing production tasks, available materials, production equipment, and technologies. The new generation of manufacturing execution systems has to support the autonomy and distribution of decision-making processes. The ACMAGV session is focused on (but not limited to):

- *Data Mining support for Energy and Resource Efficient Internal Logistics*
- *Communication between Automated Guided Vehicles and Production Stands and Production System*
- *Automated Guided Vehicle Integrated with Collaborative Robot*
- *Use Case Based CoBotAGVs Integration with Industry4.0 Production Systems*