

## Special Session **SS\_10**

### Sustainability on Production in the aspect of Industry 4.0

#### Brief description of the specific scientific scope of the Special Session:

Industry 4.0 and related new technologies have a negative impact on air pollution, waste generation, and the intensive use of raw materials, information, and energy. In connection with the above, measures have been taken to integrate the idea of sustainable development into the activities of enterprises. In the European Union countries, there is a need to look for solutions characteristic of Industry 4.0 that will reduce the negative impact of new technologies on the environment. Manufacturing technologies (e.g., 3D printing) are also gaining importance. New production technologies must minimize waste and eliminate the use of hazardous materials. It is also necessary to develop and implement technologies for the recovery and processing of waste. They must be energy-saving technologies. Pro-environmental activities should be analyzed and improved throughout the product development process because they can only bring the best results. As part of ecological production, enterprises can already plan and implement their resource consumption through digital simulations in the "Circular Economy" aspect. Another aspect that we want to consider are new production technologies in Agriculture 4.0, which begins to actively benefit from the Industry 4.0 solutions.

#### List of topics of interest

1. New and innovative techniques in design, manufacturing and product-service in the aspect of sustainability
2. Impact of new and innovative techniques on environment
3. Product life cycle analysis and eco-design methodologies
4. Computer tools supporting environmental analysis
5. Computerization of production and environment in the aspect of Industry 4.0
6. Ecological awareness of companies
7. New production technologies in Agriculture 4.0 and Maturity Model Levels for smart agriculture
8. Digital twins as a solution towards sustainability and IoT solutions supporting sustainable development
9. Artificial intelligence in sustainability on production
10. Circular economy implementation in production

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