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MINISYMPOSIUM ON COMPUTER AIDED STEERING IN ENGINEERING

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ABSTRACT

The minisymposium proposed here addresses recent advances in research and development of computer aided steering methods for engineering processes. In particular in cases where the environmental conditions of an engineering process are undetermined or subject to uncertainties, the use of simulation-based predictions of the behavior of the engineered system are of crucial importance.

Topics to be addressed in the minisyposium include but are not limited to monitoring-based model adaptation, simulation-based design and simulation-based decision and steering support systems in the area of mechanical, civil and environmental engineering.

Approaches to tackle the challenges in this area of research are the use of simulation models and artificial intelligence in order to capture information and feedback from the system and to transfer these data into steering decisions. Computer aided steering requires dealing with undetermined, uncertain and incomplete data, robustness and error handling as well as an adequate model-based representation of the underlying physical system.

Contributions dealing with system identification, feedback systems, inverse analysis, real-time simulations, handling of uncertainties and computer aided steering are welcome.