Prof. Mathias Huesing

Title:

"Synthesis and optimisation of the dimensions of mechanisms - experiences and lessons learned"

Bio

Since my early days as a research assistant at the Institute of Mechanism Theory, Machine Dynamics and Robotics at RWTH Aachen University, I have been working on the kinematic design of mechanisms and linkages. Over the years, I have learnt about and developed or co-developed a wide variety of approaches.

Abstract

In the presentation, various interesting questions will be presented and discussed: How can tolerance-insensitive mechanisms be created? What needs to be considered when designing windscreen wiper linkages? How can guidance mechanisms be optimised? What is a suitable procedure for realising motion tasks together with industrial partners using mechanisms? How can a suitable processing strategy be implemented?
It is essential to always ensure that the designer is provided with suitable tools to optimise the individual motion task. I would like to emphasise here: individual and optimal. It quickly becomes clear that the design of mechanisms in the field of textile technology, packaging technology or vehicle technology (here, for example, doors, closures or roof systems) always has very individual objectives. With regard to these individual targets, "optimum" can be interpreted in very different ways.

I have become particularly enthusiastic about an approach that I would like to call interactive optimisation.

Here, the designer must always be given control over the design process when designing a mechanism. The usability of the design tool must be kept as intuitive and simple as possible. Motivated by this, the software tool "MechDev" was developed at the IGMR, which provides suitable approaches in this sense. I would be pleased to briefly introduce this tool and look forward to a fruitful discussion.

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