

Summary

Robots based on closed kinematic chains – so called parallel robots – constitute a promising alternative to conventional serial robot structures as they meet the increasing demands with respect to dynamics and accuracy in production technology. Despite great interest in these structures within the research community during the last years, industrial application is still low. This is due to a number of problems and drawbacks associated with parallel robots as compared to serial robots, which have not been solved so far.

The Collaborative Research Center SFB 562, an interdisciplinary research group, has been established by the German Research Foundation (DFG) in order to develop fundamental concepts and solutions to overcome several of these problems, thereby improving the acceptance of parallel robots. Mechanical and electrical engineers as well as computer scientists from the Technical University of Braunschweig and the German Aerospace Center cooperate within the SFB 562. Structural design topics as well as the development of new control schemes and of machine components, particularly designed for parallel robots are covered by the work of the SFB 562.

For the second time the colloquium on “Robotic Systems for Handling Assembly“, organized by the SFB 562 brings together experts from the area of parallel manipulators from around the globe. Since the first Colloquium in 2002, many new research results have been obtained by the work of the SFB 562. Besides a presentation of this progress several well-known international experts in the field of parallel robotics from academia as well as from industry accepted to give a lecture on their latest research success. The colloquium is intended to offer a forum for exchange of new theoretical insights as well as practical experiments in parallel robotics.

This publication collects the presentations given during the colloquium. It provides an overview about present research results and future trends in parallel robotics. We are convinced that the workshop proceedings also will serve as a useful reference for those who attended the colloquium.