

Marquette University  
**e-Publications@Marquette**

---

Mechanical Engineering Faculty Research and  
Publications

Engineering, College of

---

8-15-2012

# Configuration Space Analysis and Synthesis of Planar Variable Kinematic Joints

Brian Slaboch  
*Marquette University*

Philip A. Voglewede  
*Marquette University, [philip.voglewede@marquette.edu](mailto:philip.voglewede@marquette.edu)*

---

Abstract of a presentation published as part of the proceedings of the conference, *ASME 2012 International Design Engineering Technical Conferences & Computers and Information in Engineering Conference*, 2012. [Publisher link](#). © American Society of Mechanical Engineers 2012.

**DETC2012-71146**

*Technical Publication*

Configuration Space Analysis and Synthesis of Planar Variable Kinematic Joints

**Authors**

Brian Slaboch, *Marquette University*

Philip Voglewede, *Marquette University*

**Abstract**

This paper presents a new approach to the analysis and synthesis of planar variable kinematic joints using a configuration space approach. The advantage of this approach is that the configuration space representation contains both the joint topology and the configuration variables. Based on the same configuration space, different combinations of higher pair equivalent revolute and prismatic joints can be used to analyze and synthesize planar variable kinematic joints. Two practical examples will be presented to illustrate the proposed method.

**Session:** MR-1-7 Deployable and Reconfigurable Mechanisms