

# Feature-Based Approach for a Process Supply System Design

Y.-S. Ma<sup>1,\*</sup>, Q. Hadi<sup>1</sup>

<sup>1</sup> Department of Mechanical Engineering, University of Alberta, Edmonton T6G 2G8, Canada

\*Corresponding author, Email: [yongsheng.ma@ualberta.ca](mailto:yongsheng.ma@ualberta.ca) Tel: (+1)780.492.4443

*Abstract*—the authors are motivated to investigate an effective method for achieving the knowledge-driven design in order to address the efficiency drawback in common CAD applications. In this paper, a systematic method, to embed in-depth engineering knowledge and to realize smart design changes in an advanced feature-based design, is proposed. To proof the feasibility and the effectiveness of the proposed method, a process fuel and water supply system has been designed comprehensively in the conceptual design stage. The findings of this research work are presented with some critical discussions at the end of this paper. The authors believe that this approach is easy to be implemented and useful to improve the knowledge reusability and engineering design productivity.

*Keywords*—unified feature; pressure vessel; parametric modeling; semantic modeling; feature-based design

## AUTHOR BIOGRAPHIES

Dr. Yongsheng Ma is currently an Associate Professor with at University of Alberta, Canada. His main research areas include product lifecycle management, feature-based product and process modeling. Before he joined U of A in 2007, he was with Nanyang Technological University (NTU), Singapore, since 2000. Dr. Ma received his B. Eng. from Tsing Hua University, Beijing (1986). He obtained both his M. Sc. and PhD degrees from Manchester niversity, UK in 1990 and 1994 respectively. Between 1993 and 1996, Dr. Ma started his career as a lecturer at Ngee Ann Polytechnic in Singapore; and then in the period of 1996 to 2000, employed as a senior research fellow and group manager with Singapore Institute of Manufacturing Technology.

Mr. Qayam Hadi is currently a Research Student of Dept. of Mechanical Engineering, University of Alberta. Canada.

The full paper is available for interested researchers. Please contact the corresponding author.