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Paul L. Goethals* (pgoetha@clemson.edu), Department of Industrial Engineering, 150 Freeman Hall, Clemson, SC 29634, and **Byung Rae Cho**. *Process and Product Optimization: Developing a Road Map to the Most Profitable System Settings*.

In manufacturing, when product characteristics fail to achieve their desired target value or are incapable of meeting their designed specifications, there are frequently some processing costs involved with the outcome. The magnitude of the processing cost may vary widely for the manufacturer, depending on whether the non-conforming characteristic requires additional work or must be discarded altogether. The customer may also experience the cost of a loss in product quality when a characteristic is incapable of achieving its intended value. Given this tradeoff of costs, the identification of the optimal process mean for a characteristic is frequently an objective; it can often translate to significant monetary gain for the manufacturer. In this research, a reverse optimization scheme is proposed that relates the location of the optimal process mean for a characteristic to an experimental factor space. By doing so, one is able to identify the system settings for a product that support minimizing the overall processing cost. A comparison of several algorithms is provided to suggest the most appropriate technique in arriving at solutions. (Received November 11, 2010)