

## Parametric Optimization of Wire Electric Discharge Machining (WEDM) for Aluminium Metal Matrix Composites

**Authors :** G. Rajyalakhmi, C. Karthik, Gerson Desouza, Rimmie Duraisamy

**Abstract :** In this present work, metal matrix composites with combination of aluminium with (SiC/Al<sub>2</sub>O<sub>3</sub>) were fabricated using stir casting technique. The objective of the present work is to optimize the process parameters of Wire Electric Discharge Machining (WEDM) composites. Pulse ON Time, Pulse OFF Time, wire feed and sensitivity are considered as input process parameters with responses Material Removal Rate (MRR), Surface Roughness (SR) for optimization of WEDM process. Taguchi L18 Orthogonal Array (OA) is used for experimentation. Grey Relational Analysis (GRA) is coupled with Taguchi technique for multiple process parameters optimization. ANOVA (Analysis of Variance) is used for finding the impact of process parameters individually. Finally confirmation experiments were carried out to validate the predicted results.

**Keywords :** parametric optimization, particulate reinforced metal matrix composites, Taguchi-grey relational analysis, WEDM

**Conference Title :** ICMEEM 2014 : International Conference on Manufacturing Engineering and Engineering Management

**Conference Location :** Istanbul, Türkiye

**Conference Dates :** November 28-29, 2014