Multi -Response optimization of Electric Discharge Machining (EDM) process parameter for Aluminum based Hybrid Metal Matrix Composite using GRA

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Abstract Aluminum based hybrid metal composite (MMC) have been applied to many various applications in the area of automobiles and aerospace. This research article shows the multi-response optimization of EDM of process parameter for Aluminum based metal matrix hybrid composite (Aluminum 6061/Al_2O/TiO_2).The optimum process parameter of EDM as like pulse on time (Ton), current (Ip), duty cycle (t), voltage (V) on material removal rate and surface roughness were investigated. Hybrid Aluminum metal matrix composite was machined by using tool which is made of copper materials, of ϕ12 mm for experimentation. The mechanical stirring procedure is used to fabricate the hybrid MMC. The design of experiments was conduct through the Response Surface Methodology (RSM).The experimental result declares that the main influencing input parameter is current.

Key Words: *EDM, Metal Matrix Composite,MRR, Surface roughness, GRA,*