Master Thesis / Bachelor Thesis

Modelling - Simulations of Electric discharge in meso-micro EDM

Keywords: Modelling - Simulation, Finite Element, plasma expansion, heat conduction

Motivation
Modelling and simulation is pivotal in increasing the understanding of EDM phenomena. A simulation tool has been created using COMSOL-MATLAB for single discharge heat conduction simulations. Single discharge experiments need to be performed in meso-micro scale using graphite and copper materials. Using the experimental information on plasma expansion from high-speed imaging, crater expansion and energy input, theory is validated for carbon deposition using EDM discharges.

Tasks
- Understanding basics of EDM process
- Literature survey of existing models and theory comparison
- Learning existing MATLAB-COMSOL GUI simulation
- Experimentation with single sparks
- Optimisation of model and data validation
- Summarise the results and documentation

30% experimental 50% simulations using existing GUI 20% documentation

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