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## **Study of the influence of Cu vapour on air arc characteristics**

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The arc is one kind of mixture plasma containing air and metallic vapour (Cu, Ag, Fe, etc.) in low voltage circuit breaker. The metallic vapour has important influence on arc characteristics because the properties of the mixture plasma are different with the ones of the pure air. The influence of Cu vapour on air arc characteristics is investigated in the paper. Firstly, commercial computational fluid dynamics software FLUENT was adapted and modified to develop the two-dimensional magneto-hydrodynamic (MHD) models of arc with the thermodynamic and transport properties, net emission coefficient for radiation model of 99% Air-1% Cu and pure air, respectively. Then, relevant experiments were carried out to verify the models by measuring the arc motion average velocities with 2-D optical fiber measurement system. It demonstrates that the arc motion is slower with the influence of Cu vapour.

Key words: metallic vapour, arc simulation