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Atmospheric microplasmas: effect of electric and magnetic fields
MANISH JUGROOT, Royal Military College of Canada — Small spaces are highly interesting as the complexity of micro-technology systems increases - for instance, for potential applications in spacecraft micropropulsion and active flow control. A self-consistent model of plasma and gas dynamics is applied to microplasmas. Fluid equations of the fully self-consistent model are described with emphasis on the close coupling among the plasma, the fluid and the electric/magnetic field. The microplasmas are studied from an initial cloud and the momentum and energy transfer are investigated for these discharges. Both surface effects (secondary emission) and volume effects (electric or magnetic fields) appear as critical parameters and several characteristic values are parameterized. The close interaction between the fluid and the ionized gas is investigated in microplasmas.

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