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Plasma and gas dynamics in microplasmas: influence of secondary emission MANISH JUGROOT, Royal Military College of Canada — Understanding small spaces is highly interesting as the complexity of micro-technology systems increases. 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 field. The microplasmas are studied from an initial cloud and the momentum and energy transfer are investigated for these discharges. Due to the proximity of walls and electrodes, secondary emission appears as a critical parameter and several characteristic values are parameterized. Gas heating and depletion initiation are observed, highlighting the close interaction between: the fluid and the ionized gas (volume effects) and secondary emission (surface effects) in governing the evolution of microplasmas.

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