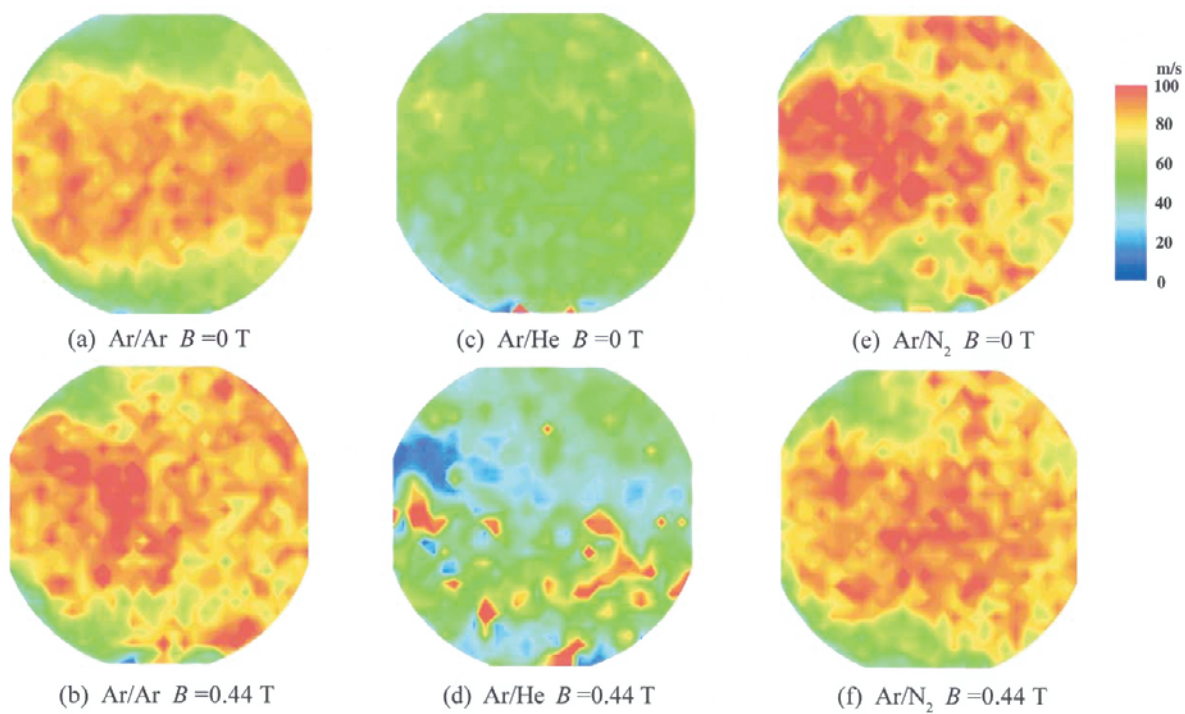


1. Visualization of the In-flight Particle Velocity in the Mixed Plasma Jet under the Applied Magnetic Field

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The mixed plasma is produced at DC discharge power of 11kW, and operating pressure of 700Pa. The primary argon gas is supplied at 30 l/min and further argon, helium or nitrogen gas is introduced vertically at 50 l/min as a secondary gas. The 10 μ m alumina particles are also injected vertically at 6g/min. The applied magnetic field is 0.44T. When the magnetic field is applied, in-flight particle velocity is accelerated by the reaction of radial Lorentz force acted on the Ar and Ar/He plasma jet, which is not the case for Ar/N₂ plasma jet. The particle velocity in the Ar/He plasma jet decreases considerably due to the small momentum exchange between plasma and particles.