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Analysis of emissive probe techniques for measurements of plasma potential[1] DANIEL EDWARD RUIZ, MARTIN GRISWOLD, YEVGENY RAITSES, Princeton Plasma Physics Laboratory, Princeton, NJ — We compare the accuracy of several emissive probe techniques for measurements of the plasma potential, including various inflection point methods, saturated floating potential, and separation point. Uncertainties due to voltage drop across the hot filament wire, space-charge effects, secondary electron emission (SEE) and orbital motion effects are studied both theoretically and experimentally. In particular, it is shown that the probe dc heating can cause a non-uniform electron emission and collection across the filament wire. This can reduce the accuracy of probe measurements.

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