

Probing an invisible plasma

Eleven tungsten filaments are seen glowing white hot at one end of a cylindrical vacuum chamber (approximately 36 cm in diameter and 1.2 m in length) used in UCLA's undergraduate experimental plasma course.

Electrons emitted from the filaments are accelerated into the chamber wall and ionize background neutral gas. Unlike the prominent plasma discharge on this month's cover, here the light emitted by the plasma is dwarfed by the intensity of light from the filaments. The lack of visible plasma phenomena in the chamber frequently causes students to question whether they have actually created a plasma. The plasma's existence is confirmed through analysis of data the students obtain using Langmuir probes, like the one shown here approaching the filaments. (Image courtesy of David Pace.)

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