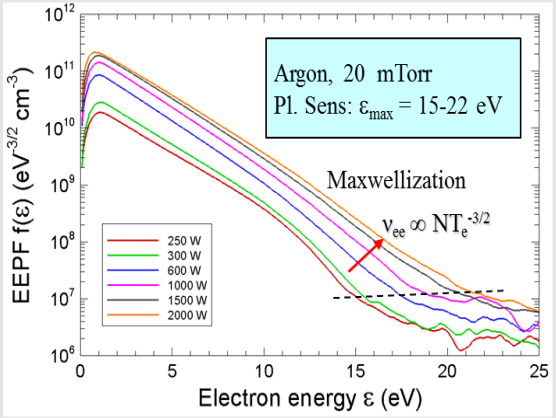
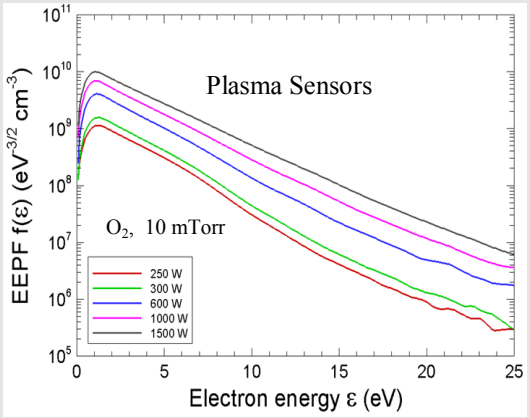
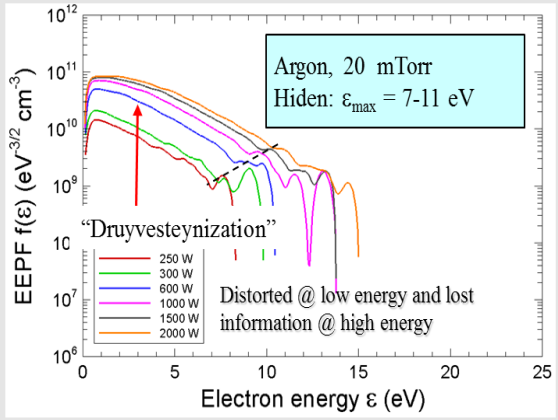
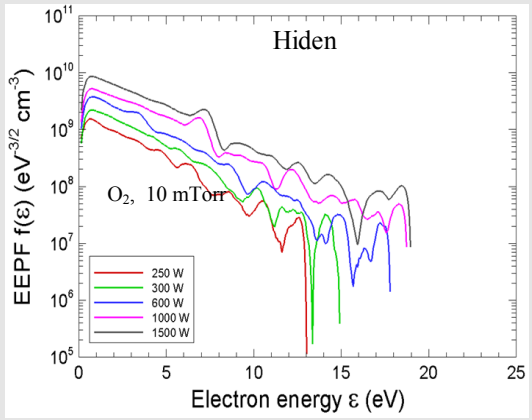
Comparison of EEPFs measured in ICPs with different commercial probes









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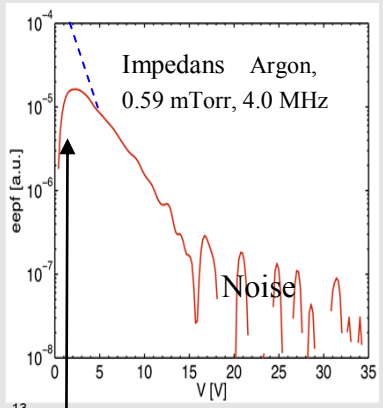

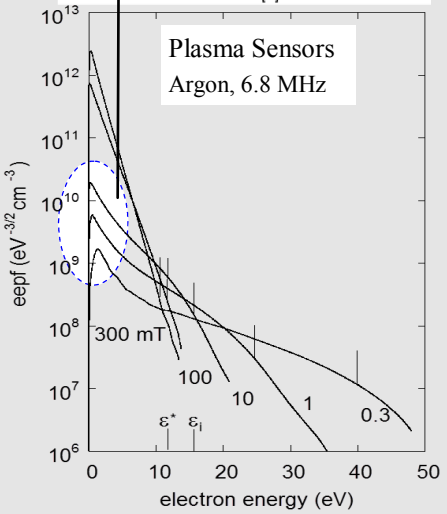

In ICP at mTorr pressure range and low plasma density, the EEDF has a low energy peak followed by a strong tail of high energy electrons, due to selective electron heating typical for anomalous skin effect.

Only instruments built by Plasma Sensors reveals those important details of EEDF in ICP at low gas pressure .

Many user-built and commercial probe systems show Druyvestein-like EEDFs obtained in high density plasma. This can be ascribed only to instrumentation errors because for plasma density N ~ (1-10) 10^{11} the EEDF in elastic energy range ($\varepsilon < \varepsilon^*$) must be Maxwellian. Such distorted EEDF lacks low energy electrons comprising the majority of electron population and creates an error in the plasma density calculation. Another limitation of probe systems is their noise level masking distribution of high energy electrons ($\varepsilon > \varepsilon^*$), which define non-elastic processes.

The probe system from Plasma Sensors eliminates or significantly reduces errors prevalent in other instruments