Octiv VI Probe in Oxford Instruments

- PlasmaLab 100 and 80

RF Measurement and Plasma Control Sensors

https://impedans.com/octiv-mono-rf-wattmeter

https://impedans.com/octiv-poly-vi-probe

https://impedans.com/octiv-suite-vi-probe

Impedans
PLASMA MEASUREMENT

Oxford Instruments
- PlasmaLab 100 (CCP)

Pressure dependent discharge characteristics studied using Octiv I-V probe

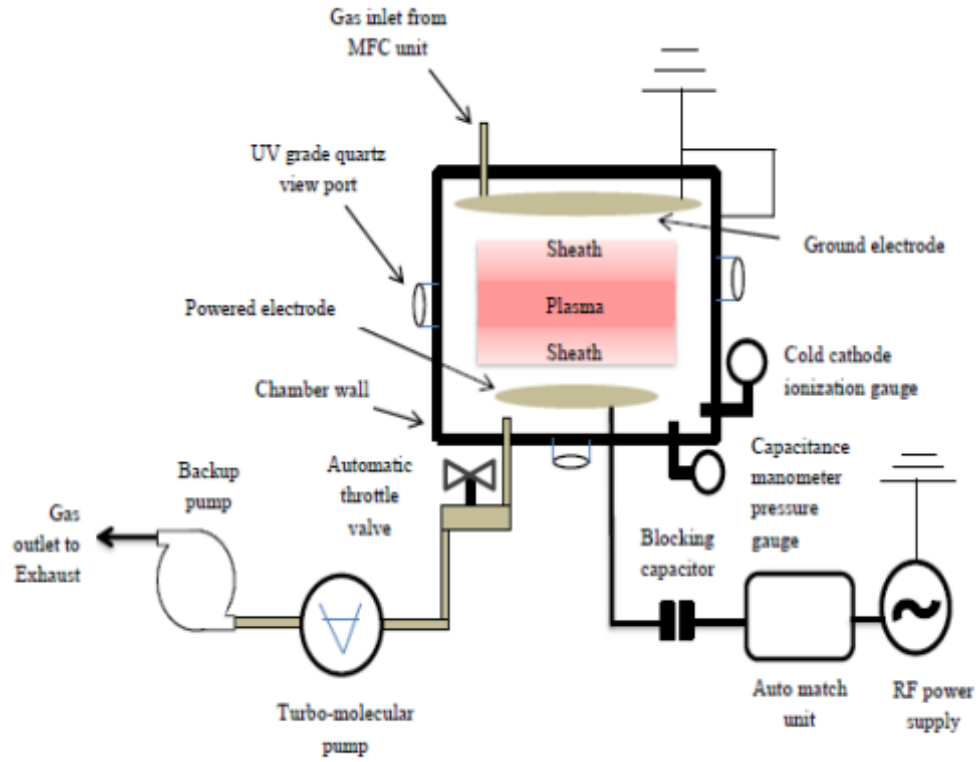
Experimental investigation of atomic fluorine and oxygen densities in plasma etch processes

DOI: Thesis_20171219.pdf (dcu.ie)

As part of this work, the phase shift angle between the plasma current and voltage was measured using an Octiv VI probe to corroborate Langmuir probe predictions of changes in electron heating mode.

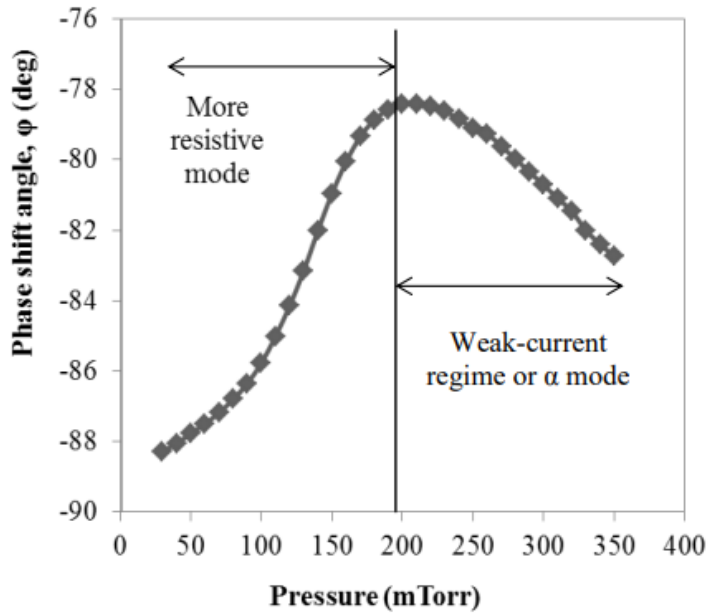
The inline probe was installed the between powered electrode and automatic matching unit.

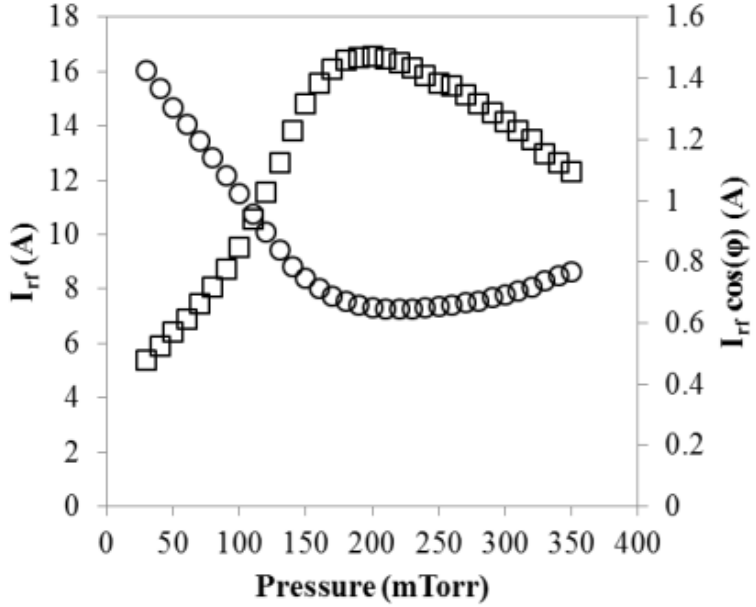
Some example data is shown to the right.

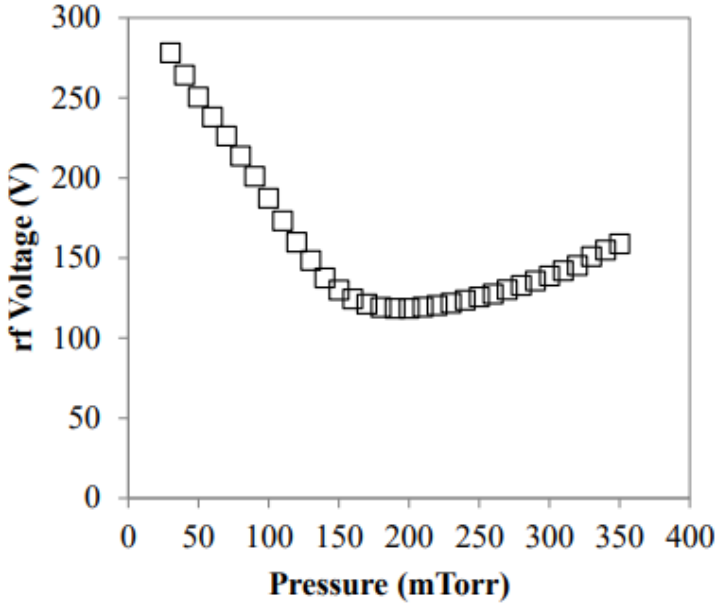


Schematic of Oxford instruments Plasmalab system 100.

Pressure dependent discharge characteristics studied using Octiv I-V probe







Pressure dependence on phase shift angle, RF current amplitude (○), active RF current (□) and RF voltage measured using Octiv probe in $SF_6/O_2/Ar$ (70/26/4%) capacitively coupled discharge operated at 100 W rf power.

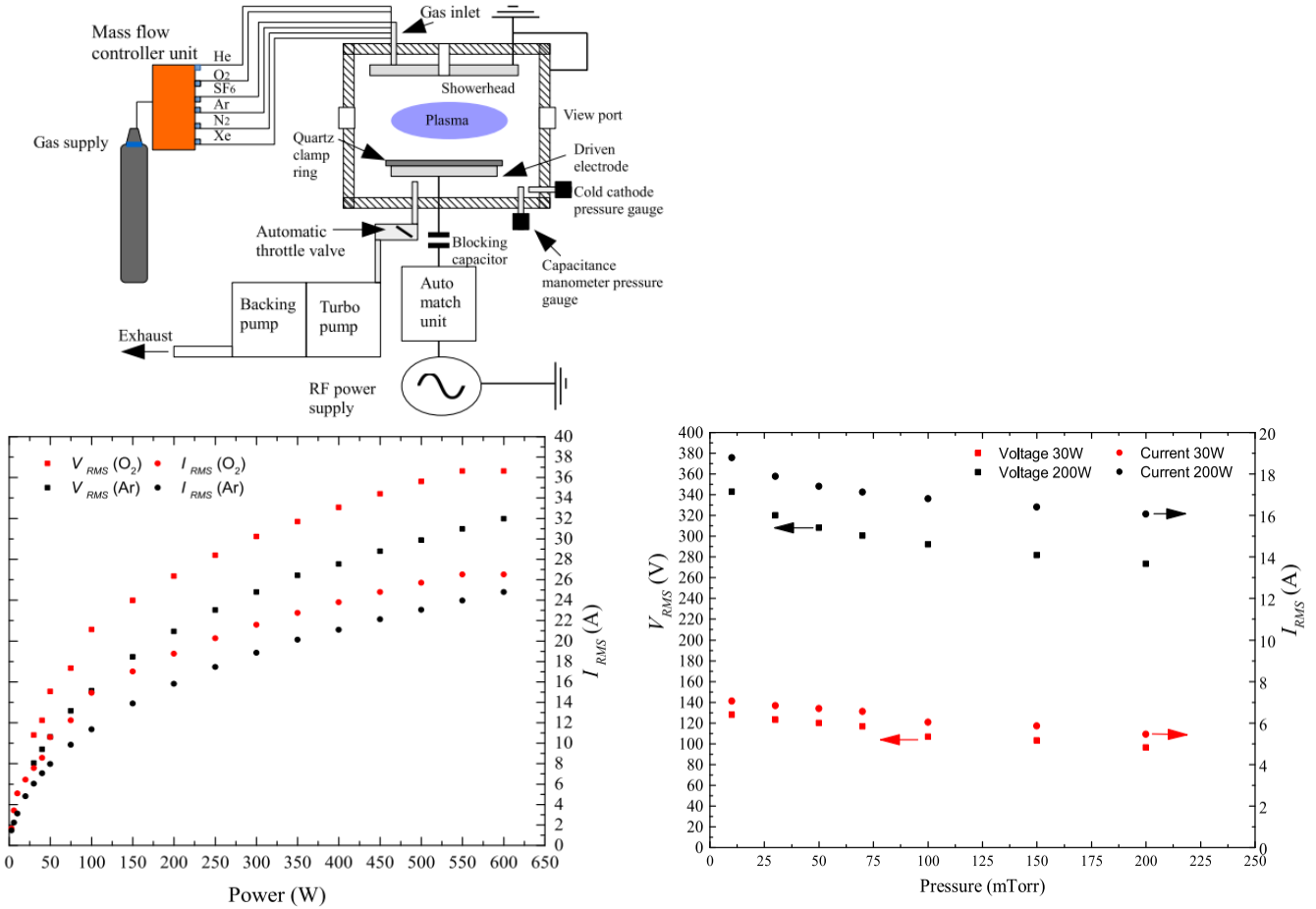
Variation in RF plasma parameters due to changes in the electron heating mechanisms

Investigation of the electron kinetics in O_2 capacitively coupled plasma with the use of a Langmuir probe

DOI: https://doi.org/10.1088/1361-6595/aa6c90

This article reports various electron plasma parameters in an O_2 CCP with use of electrical probes. Important electron plasma parameters such as the EEPF, n_e, T_{eff} and also discharge operating parameters such as RF current and voltage were reported.

Some example data is shown to the right.



Experimental setup. Comparison of the measured rf voltage (V_{rms}) and rf current (I_{rms}) as function of applied power in argon and oxygen plasma (100 mTorr). Also shown results as a function of gas pressure in O_2 plasma for both 30 and 200 W.

Monitoring V-I characteristics using inline Octiv VI probe

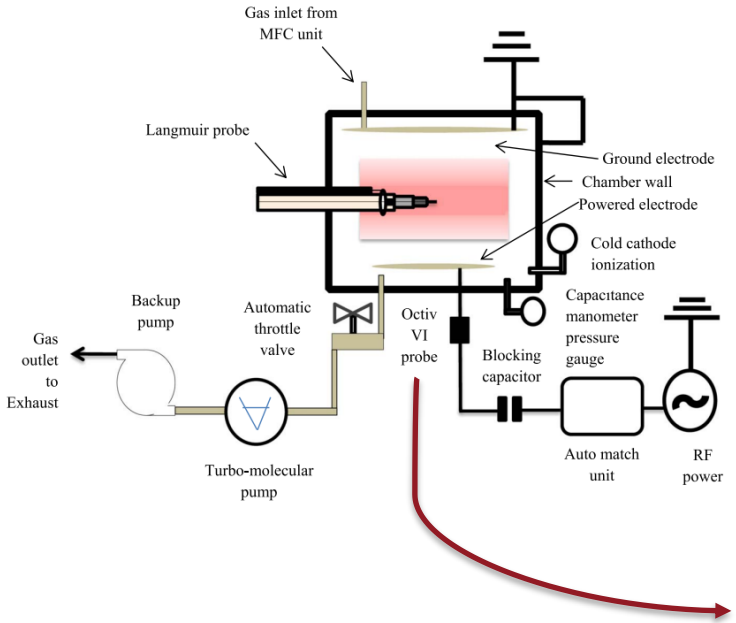
Experimental investigation of electron heating modes in capacitively coupled radio-frequency oxygen discharge

DOI: https://doi.org/10.1088/1361-6595/ab4c59

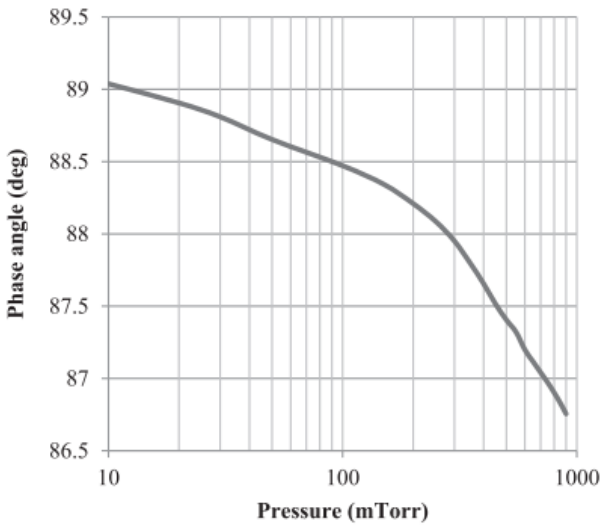
In this work, the phase shift angle between the plasma current and voltage was measured to corroborate Langmuir probe predictions of changes in electron heating mode. An Octiv VI probe is employed here.

The inline probe was installed between the powered electrode and automatic matching unit.

Some example data is shown to the right.



Accurate Phase measurement



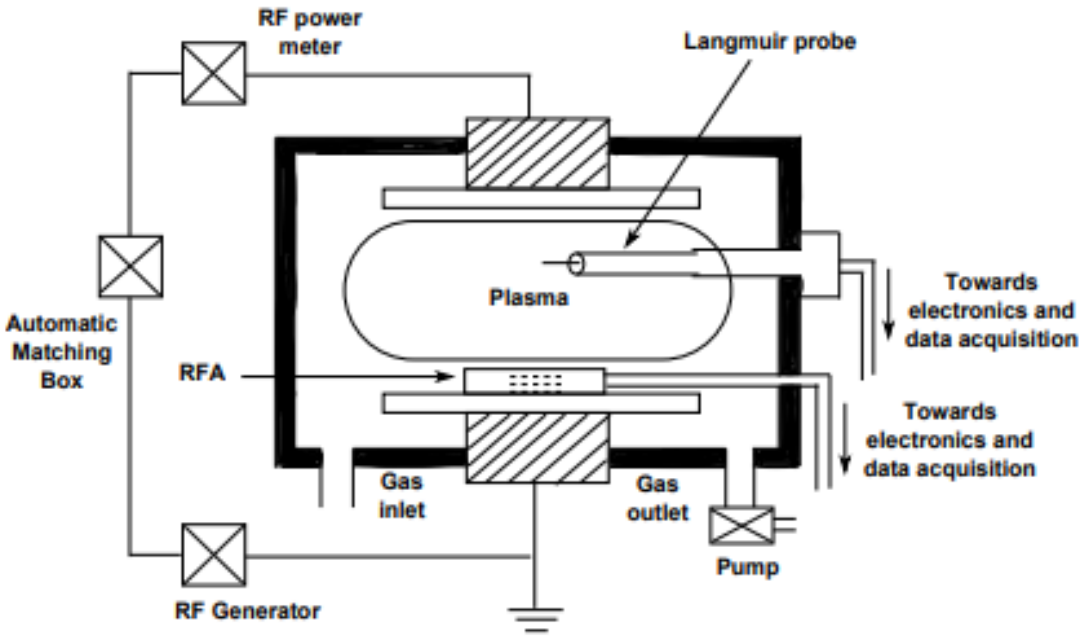
Experimental setup and phase angle measurements using Octiv VI probe for different gas pressures in O_2 discharge operated at 200 W applied rf power.

Novel sensor design and techniques for process engineers in developing and control highly precise plasma processes

Electrical plasma diagnostics for the measurement of ion related parameters at the substrate surface

DOI: Thesis.dvi (dcu.ie)

In this work, an Octiv-Suite VI probe was installed between the automatic match box and the electrode and was used to measure the exact RF power being delivered to the reactor from the RF generator.



Schematic of Oxford instruments Plasmalab system 100.

Oxford Instruments
- PlasmaLab 80 (ICP)

Controlled extraction of positive and negative ions from a pulsed high density SF_6 plasma

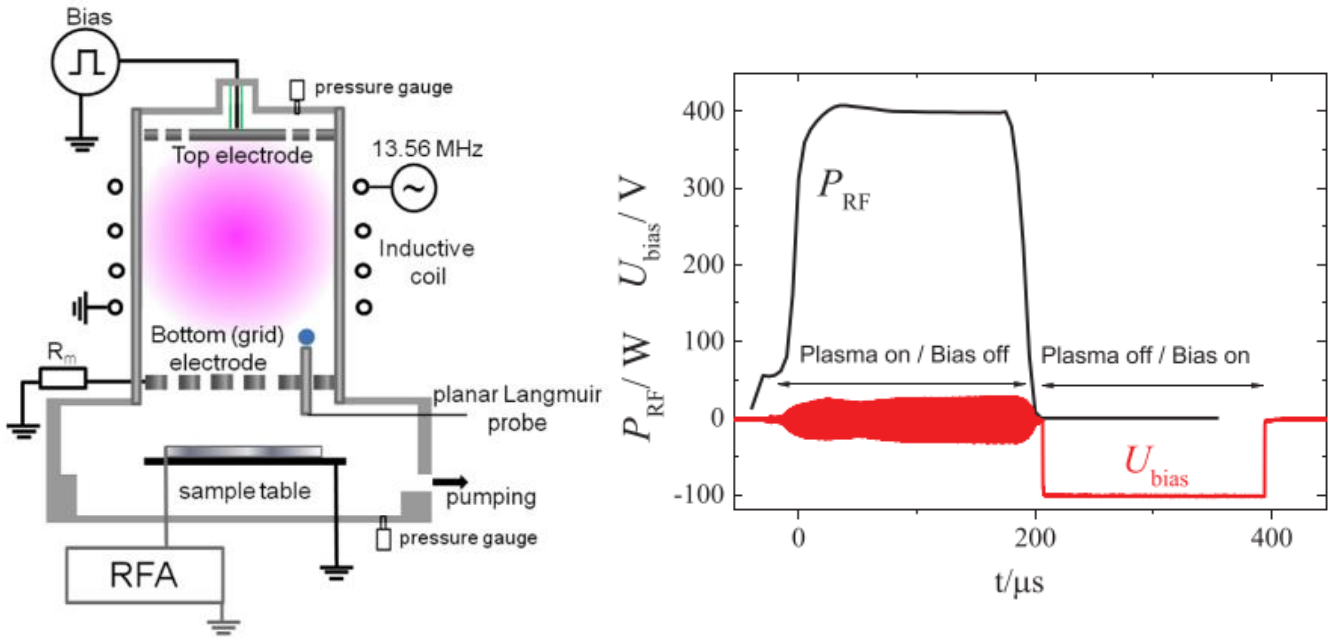
Extraction and neutralization of positive and negative ions from a pulsed electronegative inductively coupled plasma

DOI: http://dx.doi.org/10.1088/0963-0252/24/6/065008

In the present study, investigation of the extraction of positive and negative ions from a pulsed inductively coupled plasma (ICP) in SF_6 bounded by two independently biased electrodes (with one of the electrodes fitted with an extraction grid) is carried out.

Time resolved measurements of the transmitted RF power before the matcher were performed using an Octiv VI probe.

Some example data is shown to the right.



Experimental setup and time dependence of the transmitted RF power before the matcher (P_{RF}) and the bias voltage at the top electrode (U_{bias}) in an SF_6 pulsed ICP at 3.3 Pa.

Behaviour of pulsed discharges and electron dynamics for neutral beam etching (NBE) applications

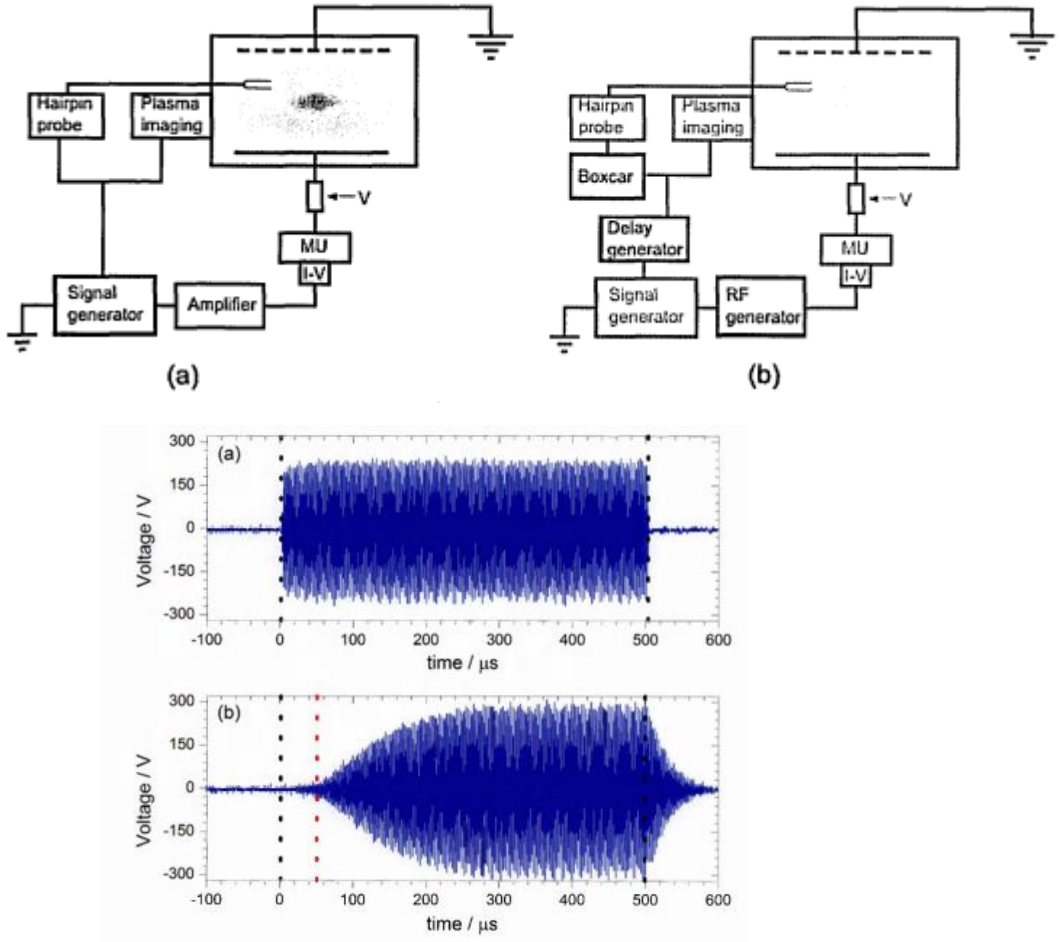
Neutral Beam Etching

DOI: 13835812.pdf (open.ac.uk)

In the present study, an Impedans Octiv probe was used to measure the time resolved voltage, current, phase difference and impedance for the first four harmonics of the input power when the plasma was operated in pulsed mode.

The same probe was used to measure the same parameters in addition to the input power, reflected power, and forwarded power when the plasma was operated in continuous mode

Some example data is shown to the right.



Experimental setup with (a) the RF voltage for the non-modulated pulses and (b) the RF voltage of the amplitude modulated case.

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