Vacuum discharge
(Current through
the chamber only)

ID:uloop
$\approx U_l$

Calibration[5]

$U_l(t)$

ID:irog
$\approx \frac{dI_{ch}}{dt}$

Offset correction
Integration[3)]
Calibration[4)]

$I_{ch}(t)$

Chamber resistance[1,2)]
$R_{ch} = \frac{U_l}{I_{ch}}$

Plasma discharge
(Current through
the chamber and the plasma)

ID:uloop
$\approx U_l$

Calibration[5]

$U_l(t)$

ID:irog
$\approx \frac{dI_{ch+p}}{dt}$

Offset correction
Integration[3)]
Calibration[4)]

$I_{ch+p}(t)$

Plasma current[2)]
$I_p(t) = I_{ch+p}(t) - \frac{U_l(t)}{R_{ch}}$

1) With some statistical effort. 2) Do it in the stationary phase, i.e. current constant, to avoid inductive phenomena. 3) 1 us step. 4) Rogowski Coil calibration constant = 5.3 . 10^6 A/Vs 5) Uloop calibration constant = 5.5