Quals (2007)
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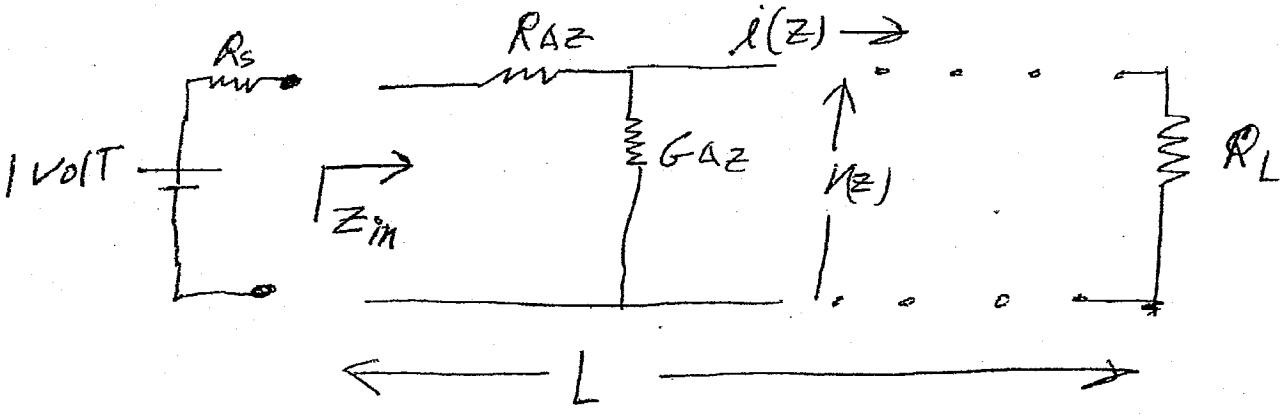
Consider a line with distributed resistance R and conductance G connected to a load R_L, with length L



With the source disconnected find the input impedance Z_{in}.

Note that the line is completely described by the differential Equations:

$$\frac{dV}{dz} = -Ri$$

$$\frac{di}{dz} = -GV \qquad (1)$$

where V(z) and i(z) are the voltage and current as a function of position.