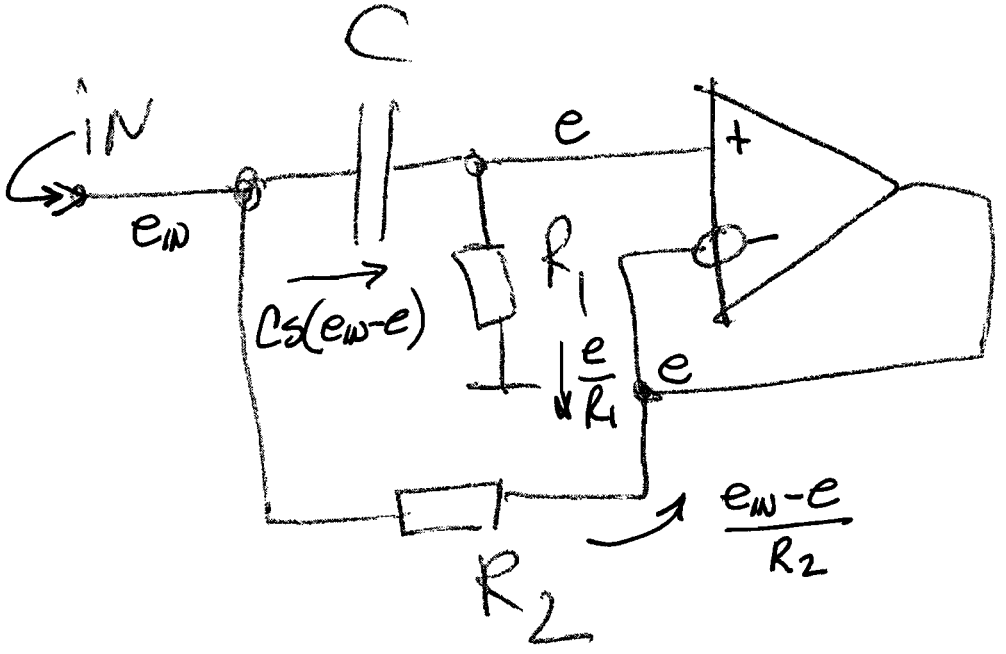
"Vladimir Vassilevsky" <nospam@nowhere.com> in message...
Newsgroups: sci.electronics.design
Message-ID: <i7idndUGgO876ZzMnZ2dnUVZ5hCdnZ2d@giganews.com>
Subject: Re: Poor Man's Gyrator
Claims.....



TRIVIAL GYRATOR

$$L = R_1 R_2 C$$

$$C_s(e_{IN}-e) = \frac{e}{R_1} \rightarrow C_s e_{IN} = e\left(C_s + \frac{1}{R_1}\right) \rightarrow$$

$$R_1 C_s e_{IN} = e(R_1 C_s + 1) \rightarrow e = \frac{R_1 C_s}{R_1 C_s + 1} e_{IN} \rightarrow$$

$$e_{IN} - e = e_{IN}\left[1 - \frac{R_1 C_s}{R_1 C_s + 1}\right] \rightarrow e_{IN} - e = \frac{e_{IN}}{R_1 C_s + 1} \rightarrow$$

$$i_{IN} = \left(C_s + \frac{1}{R_2}\right)\cdot(e_{IN} - e) = \left(C_s + \frac{1}{R_2}\right)\cdot\frac{e_{IN}}{R_1 C_s + 1} \rightarrow$$

$$i_{IN} = \frac{R_2 C_s + 1}{R_1 C_s + 1}\cdot\frac{e_{IN}}{R_2} \rightarrow Z_{IN} = \frac{e_{IN}}{i_{IN}} \rightarrow$$

$$Z_{IN} = \frac{R_2\cdot(R_1 C_s + 1)}{R_2 C_s + 1} = \frac{R_1 R_2 C_s + R_2}{R_2 C_s + 1}$$

"INDUCTIVE", $L = R_1 R_2 C$, BUT $R_2 C_s + 1$ SCREWS IT.

COMPARE TO: http://www.analog-innovations.com/SED/Poor_Mans_Gyrator.pdf