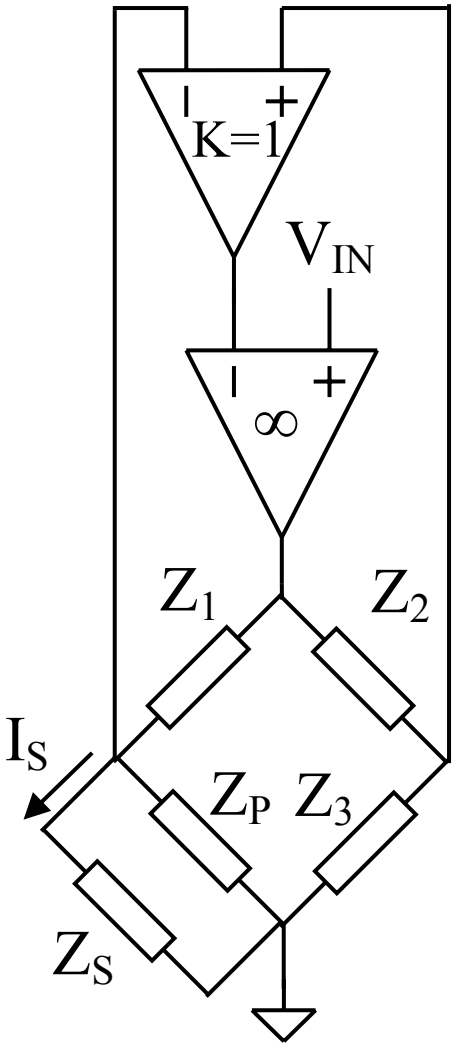
NEW BRIDGE CHALLENGES NEW MEASUREMENT TOPOLOGIES.

After Wheatstone, Kelvin, Wien, Carey-Foster, Maxwell, Hat , Owen, Anderson, Campbell, Schering,…



Fontana's CCI [1] (Compensated Current Injection) circuit is a wide frequency band voltage-to-current converter. The converter is characterized by a combination of positive and negative feedback loops. This feature allows compensation for parasitic impedance Z_P connected in parallel with the useful load, which in turn keeps an excitation current I_S flowing through the useful load Z_S independent of its impedance. The simplicity of the circuit and its good electrical properties are additional advantages of the scheme.

IF $$Z_1 Z_3 = Z_P Z_2$$

THEN $$I_S = V_{IN} \frac{(Z_P + Z_1)}{Z_P Z_1} = V_{IN} Y_{T\infty}$$

Review of Scientific Instruments Vol. 74, N 3, pp 1332-1337, March 2003.

[1] http://www.ing.unitn.it/~fontana/