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Transformer circuit model wrapper script Simply looks at specifed values of L1 & L_ratio. No trade study Seed current is 2.2e5 A to get correct circuit energy & capacitor energy 02/19/19

```
clear all
close all

test.L1=1e-6;
test.Lratio=1;
test.graphDisplay=false;
[E_gain,E_circ] = circuitModelFunv2(test)
```

```
E_gain =

   1.0492e+06


E_circ =

   9.5538e+06
```

Impacts on thrust & Isp

```
Plasma_thermal_energy_calc
E_therm=10e6;
E_avail=E_therm-E_circ;
eta=0.2;
g_0=9.81;
f=10;
V_e=sqrt(2*eta*E_avail/(m_T*1e-3));
Isp=V_e/g_0
T=f*V_e*m_T

E_circ=0;
E_avail=E_therm-E_circ;
V_e=sqrt(2*m_T*eta*E_avail/(m_T*1e-3));
Isp=V_e/g_0
T=f*V_e*m_T
```

```
E_therm =

   9.3913e+07


Isp =

   65.1272
```

```
T =

   2.7937e+06

Isp =

   6.4470e+03

T =

   2.7655e+08
```

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