

## ZT to COP Thermoelectric CDF Tool

### Conversion of ZT of a Thermoelectric to Refrigeration COP

The tool below is based on the Mathematical Computable Document Format (CDF). To download the required, free CDF player [click here](#)

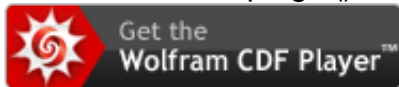
The tool uses the following formula for the ZT to COP (refrigeration) conversion:

$$COP_R = \left( \frac{T_c}{T_h - T_c} \right) \left( \frac{\sqrt{1 + ZT_m} - T_h/T_c}{\sqrt{1 + ZT_m} + 1} \right)$$

where  $T_c$  and  $T_h$  are the cold and hot side temperatures of the thermoelectric, respectively (both in absolute temperatures!). The “T” in “ZT” is assumed to be the arithmetic average of the cold and hot temperatures.

The CDF tool follows.

```
var cdf = new cdfplugin();var defaultContent = '
```



```
'; if (defaultContent!= "") { cdf.setDefaultContent(defaultContent); }  
cdf.embed('/wiki/ZTtoCOPThermoelectricCDFTool/File:ZT_COP.cdf', 400, 400);
```

