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In[•]:= Zθ = -0.1 + 0.1 I
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$$\text{In}[•]:= g = 4\pi \sqrt{1.1^2 + 0.1^2} \sin\left[\pi/8 + \text{ArcTan}\left(\frac{0.1}{1.1}\right)\right]$$

$$\text{In}[•]:= z = z + z \sqrt{1 - z^{-2}}$$

$$\text{In}[•]:= w_2 = T \text{Exp}[-i\pi/8] + \frac{1.1^2 + 0.1^2}{T} \text{Exp}[i\pi/8] - \frac{g}{2i\pi} \text{Log}\left[T/\sqrt{1.1^2 + 0.1^2}\right]$$

$$\text{In}[•]:= \text{ParametricPlot}\left[\text{Through}\left[\{\text{Re}, \text{Im}\}\left[\frac{1}{2} \left(z + \frac{1}{z}\right) /.\ z \rightarrow 1 + \sqrt{1.1^2 + 0.1^2} (\text{Exp}[i t] - \text{Exp}[-i \text{ArcTan}[0.1/1.1]])\right]\right], \{t, 0, 2\pi\}, \text{Frame} \rightarrow \text{None}, \text{PlotStyle} \rightarrow \text{Directive[Black, Thick]}, \text{PlotPoints} \rightarrow 50\right]$$

$$\text{In}[•]:= \text{ContourPlot}[\text{Im}[\text{Evaluate}[w /. T \rightarrow z]] /.\ z \rightarrow x + iy, \{x, -2, 2\}, \{y, -2, 2\}, \text{Frame} \rightarrow \text{None}, \text{ColorFunction} \rightarrow (\{\text{Opacity}[\#], \text{ColorData}[\text{"TemperatureMap"}][\#]\} \&), \text{AspectRatio} \rightarrow 1, \text{Contours} \rightarrow 70, \text{Mesh} \rightarrow \text{None}, \text{WorkingPrecision} \rightarrow 100]$$

