1096-37-749 **Bernat Espigule-Pons*** (bernatep@gmail.com). *Golden Trees and Their Relatives: A Mathematical Arboretum in 3D.*

In 2007, Tara Taylor presented the four self-contacting symmetric binary fractal trees that scale with the golden ratio. As she showed, theses trees possess remarkable symmetries in addition to the usual symmetries associated with symmetric binary fractal trees. Here, we reinforce the importance of her observations showing that there is an analogous critical behavior for symmetric ternary fractal trees. We introduce the five self-contacting ternary fractal trees that scale with the golden ratio, and we highlight some of their properties through the generalized equations for self-contacting symmetric n-ary fractal trees. In addition to these results, we exhibit the 3D-printed models of these five golden trees, and we quickly summarize the contents of the author's interactive website http://pille.iwr.uni-heidelberg.de/~fractaltree01/. The angles $\theta$ of the five self-contacting ternary symmetric golden trees are: $\cos^{-1}\left(\frac{1}{3}\right)$, $\tan^{-1}\left(\frac{4}{\sqrt{9\sqrt{38-14\sqrt{5}}+9\sqrt{5}-43}}\right)$, $2\tan^{-1}\left(\sqrt{\frac{1}{10}\left(5+3\sqrt{5}\right)}\right)$, $\cos^{-1}\left(-\frac{1}{3}\right)$ and $\cos^{-1}\left(-\frac{\sqrt{5}}{3}\right)$. (Received September 10, 2013)