1014-11-37 **Doug Hensley*** (dhensley@math.tamu.edu), Doug Hensley, Dept Math, Texas A& M University, College Station, TX 77843-3368. *Complex Continued Fractions.*

The Hurwitz continued fraction algorithm generates an expansion of the form

$$z = a_0 + \frac{1}{a_1 + \frac{1}{a_2 + \dots}},$$

where $a_0, a_1 \dots$ are Gaussian integers, to an arbitrary complex number z. If z is a Gaussian rational, the expansion terminates, and the final finite-depth continued fraction gives a reduced fraction equal to z. If not, the sequence of *convergents* got by truncating the expansion at depth k, converges to z. Here, we show that this algorithm has excellent convergence properties, comparable to those known to hold for the Asmus Schmidt complex continued fraction algorithm, and we study some surprising cases in which algebraic inputs z lead to expansions that exhibit behavior that is neither periodic (along the lines of the classical continued fraction expansion of $\sqrt{n}$), nor 'typical'. We close by working out the details of what that 'typical' behavior is, and give an analog, for the case of the Hurwitz algorithm, to the classical Gauss-Kuz'min theorem. (Received June 28, 2005)