Meeting: 1004, Bowling Green, Kentucky, SS 8A, Special Session on Topology, Convergence, and Order, in Honor of Darrell Kent

1004-40-147 **Jamie Johnson*** (johnsjm1@wku.edu), Department of Mathematics, Western Kentucky University, 1 Big Red Way, Bowling Green, KY 42101. *Continued Radicals.*

If $a_1, a_2, \ldots, a_n$ are nonnegative real numbers and $f_j(x) = \sqrt{a_j + x}$, then $f_1 \circ f_2 \circ \cdots \circ f_n(0)$ is a nested radical with terms $a_1, \ldots, a_n$. If it exists, the limit as $n \to \infty$ of such an expression is a continued radical. We consider the set of real numbers $S(M)$ representable as a continued radical whose terms $a_1, a_2, \ldots$ are all from a finite set M. We give conditions on the set M for $S(M)$ to be (a) an interval, and (b) homeomorphic to the Cantor set. (Received January 23, 2005)