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**Anders O.F. Hendrickson\*** ([hendrick@math.wisc.edu](mailto:hendrick@math.wisc.edu)), Department of Mathematics,  
University of Wisconsin, 480 Lincoln Drive, Madison, WI 53706-1388. *Supercharacter theories of  
cyclic  $p$ -groups.*

If  $\mathcal{K}$  is a partition of a finite group  $G$ , there sometimes exists a compatible partition  $\mathcal{X}$  of the irreducible characters of  $G$ , along with a character  $\chi_X$  for every  $X \in \mathcal{X}$  with the elements of  $X$  as its irreducible constituents, so that each  $\chi_X$  is constant on each  $K \in \mathcal{K}$  and  $|\mathcal{X}| = |\mathcal{K}|$ . If  $\{1\} \in \mathcal{K}$ , then P. Diaconis and M. Isaacs have called such an ordered pair  $(\mathcal{X}, \mathcal{K})$  a *supercharacter theory*.

We describe the set of all supercharacter theories (up to scaling) of the cyclic group of order  $p^n$  for an odd prime  $p$ , and we show that its cardinality is a polynomial in  $d$  of degree  $n$ , where  $d$  is the number of divisors of  $p - 1$ . (Received September 20, 2007)