

Meeting: 1005, Newark, Delaware, SS 1A, Special Session on Homotopy Theory (in Honor of Donald M. Davis's and Martin Bendersky's 60th Birthdays)

1005-55-99 **Nicholas J. Kuhn*** (njk4x@virginia.edu), Department of Mathematics, University of Virginia, Charlottesville, VA 22904-4137. *Telescopic functors: a crash course.*

With all spaces and spectra localized at a prime p , let $T(n)$ denote the mapping telescope of a v_n -self map of a finite C.W. spectrum of type n , and let $v^{-1}\pi_*(Z; W)$ denote the periodic unstable homotopy groups of a space Z associated to a v_n -self map $v : \Sigma^d W \rightarrow W$.

There is a functor

$$\Phi_n : \text{Spaces} \rightarrow \text{Spectra}$$

such that

- (a) $[W, \Phi_n(Z)]_*$ is naturally isomorphic to $v^{-1}\pi_*(Z; W)$,
 - (b) $\Phi_n(Z)$ is $T(n)$ -local for all spaces Z , and
 - (c) $\Phi_n(\Omega^\infty X)$ is naturally equivalent to $L_{T(n)}X$ for all spectra X .
- Properties (a) (suitably strengthened) and (b) characterize Φ_n .

Most of this is old news - work of Bousfield (for $n = 1$) and me from the 1980's - though some new wrinkles have been added recently. However, now there is a new generation of deep applications, showing that these telescopic functors play a central role in studying homotopy, as organized chromatically. Thus, I will give a 20 minute crash course (and wish Martin Bendersky and Don Davis happy 60th birthdays). (Received February 01, 2005)