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 $v : \Sigma^d W \to W$.

There is a functor

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

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)