1044-55-205 **Eric Lee Finster*** (ericfinster@gmail.com), 2758 Hydraulic Rd., Charlottesville, VA 22901.
Stabilization of Homotopy Limits.

Given a functor $F : \mathcal{C} \to \mathcal{S}$, we study the spectrum $\Sigma^\infty \mathrm{holim}_{\mathcal{C}} F$. The natural map

$$\Sigma^\infty \mathrm{holim}_{\mathcal{C}} F \to \mathrm{holim}_{\mathcal{C}} \Sigma^\infty F$$

is rarely an equivalence, but can be thought of as a linear approximation to $\Sigma^\infty \mathrm{holim}_{\mathcal{C}} F$ in the sense of Goodwillie. We describe a family of endofunctors $B_n : \mathcal{C}at \to \mathcal{C}at$ such that there is a tower of fibrations

$$\cdots \to \mathrm{holim}_{B_n(\mathcal{C})} \Sigma^\infty F_n \to \mathrm{holim}_{B_{n-1}(\mathcal{C})} \Sigma^\infty F_{n-1} \to \cdots \to \mathrm{holim}_{B_1(\mathcal{C})} \Sigma^\infty F_1$$

Under some hypotheses on $\mathcal{C}$ and F, we show that $\Sigma^\infty \mathrm{holim}_{\mathcal{C}} F$ is equivalent to the inverse limit of this tower, so that we have a natural filtration of the stable homotopy type of a homotopy limit.

Various special cases of this construction yield familiar results. When the indexing category $\mathcal{C}$ is discrete, we obtain the classical Snaith splitting of a product of spaces. We also describe the connection of this construction to the Bousfield-Kan spectral sequence of a cosimplicial space. (Received September 01, 2008)