1046-55-135 **Xiaoxue H Li*** (xli@ehc.edu), Department of Mathematics, Emory & Henry College, P.O. Box 947, Emory, VA 24327. *Some properties of the v_1-periodic spectra associated to exceptional Lie groups.*

Bendersky, Bousfield, Davis, and Mohowald calculated v_1-periodic homotopy groups for many compact simple Lie groups. An important construction in these calculations was a spectrum ΦX associated to a topological space X, which satisfies $\pi_*(\Phi X) = v_1^{-1}\pi_*(X;p)$. Bousfield proved that the p-exponent of the spectrum ΦX is the same as the p-exponent of the group $K^1(\Phi X) = PK^1(X)/\psi^p$. We calculate the summand decomposition of $K^1(\Phi X)$ and get the p-exponent as the largest summand. We accomplish this for all exceptional Lie groups X and all odd primes p and compare them with the known p-exponent of the homotopy group $\pi_*(\Phi X)$. Our second result is to interpret the way the spectrum ΦX is built. We proved that ΦX can be built up from various ΦS^{2i+1} by fibrations. We then analyzed how these cells ΦS^{2i+1}'s were attached together. The attaching maps between cells were detected by the Adams module and the v_1-periodic homotopy groups. For all exceptional Lie groups at all odd primes p, we obtain a nice picture of how the ΦS^{2i+1}'s are attached together to build ΦX. (Received August 02, 2008)