1097-14-178 **Lara B. Anderson*** (lara.anderson@vt.edu), Department of Physics, Virginia Tech, 850 West Campus Drive, Blacksburg, VA 24060. *Geometric Constraints in Heterotic/F-theory Duality.* Preliminary report.

We systematically analyze a broad class of dual heterotic and F-theory models that give four-dimensional supergravity theories, and compare the geometric constraints on the two sides of the duality. In this talk I will show that F-theory gives new insight into the conditions under which heterotic vector bundles can be constructed. We show that in many cases the F-theory geometry imposes a constraint on the extent to which the gauge group can be enhanced, corresponding to limits on the way in which the heterotic bundle can decompose. We explicitly construct all dual F-theory/heterotic pairs in the class under consideration where the common twofold base surface is toric, and give both toric and non-toric examples of the general results. (Received January 21, 2014)