1077-14-1375 **Yonatan Harpaz*** (harpazy@gmail.com) and **Tomer M. Schlank** (tomer.schlank@gmail.com). *Homotopy Obstructions to Rational Points - II.*

In 1969 Artin and Mazur defined the étale homotopy type $\acute{E}t(X)$ of a scheme X as a way to homotopically realize the étale topos of X. In this talk we will consider the relative situation $X \to S$ and define a relative version $\acute{E}t_{/S}(X)$ of this notion. We call it the **relative homotopy type of X over S.**

It turns out that the relative homotopy type can be especially useful in studying the sections of the map $X \to S$. In particular this notion can be used in order to obtain homotopy-theoretic obstructions to the existence of a section.

In the special case where $S = Spec(K)$ is the spectrum of a field K, the set of sections are just the set of K-rational points $X(K)$. In that case the obstructions we obtain are a direct generalization of Grothendieck's section obstruction. If furthermore K is a **global field** then these obstructions can be used to described various known arithmetic obstructions, such as the regular and étale Brauer-Manin obstructions. This point of view can be used to show new properties of these obstructions. (Received September 19, 2011)