Laurent Moret-Bailly: Topological aspects of strong approximation: the case of torsors over valued fields.

Let (K, v) be a valued field, Y a K-variety, G an algebraic group over K (not necessarily smooth), and $f : X \longrightarrow Y$ a G-torsor over Y. We consider the induced continuous map $X(K) \longrightarrow Y(K)$ (with the valuation topology). We prove that if (K, v) is henselian and its completion is a separable extension, then:

- the image I of this map is locally closed in $Y(K)$,
- the induced surjection $X(K) \longrightarrow I$ is a principal $G(K)$-bundle.

A key ingredient is the strong approximation property for the ring of v.

(Joint work with Ofer Gabber and Philippe Gille, available at http://algebraicgeometry.nl/2014-5/2014-5-025.pdf).