1043-55-57 **Yves Felix**, Universite Catholique de Louvain, Louvain-la-neuve, Belgium, and **John Oprea*** (j.oprea@csuohio.edu), Department of Mathematics, 2121 Euclid Ave., Cleveland State University, Cleveland, OH 44115. *Rational homotopy of gauge groups.*

Let $K \to P \xrightarrow{\xi} B$ be a continuous principal K-bundle, where K is a compact connected Lie group. Denote by $G(\xi)$ the gauge group of ξ: that is, the set of all K-equivariant self-homeomorphisms of P over B. Also, denote by $G_1(\xi)$ the subgroup of $G(\xi)$ consisting of the self-homeomorphisms that preserve the basepoint of P. When B has the homotopy type of a connected finite CW complex, we prove that there are rational homotopy equivalences

$$G(\xi) \simeq_{\mathbb{Q}} \mathrm{Map}(B, K) \qquad \text{and} \qquad G_1(\xi) \simeq_{\mathbb{Q}} \mathrm{Map}_*(B, K)\,.$$

As a corollary, we show that the rational homotopy groups of $G(\xi)$ and $G_1(\xi)$ may be described in terms of the rational homotopy groups of K and cohomology groups of B alone. (Received August 13, 2008)