The accumulated $p$-variation $M(x)$ of a $p$-rough path $x$ over $[0,t]$ is given by

$$\sup_{D=(0=t_0\leq t_1\leq \ldots \leq t_r=t)} \sum_{i=1}^{r} ||x||_{p-\text{var},[t_i,t_{i+1}]}^p.$$ 

This functional arises naturally as an optimal pathwise growth estimate to solutions to rough differential equations, and to higher order terms in the signature of $x$ (i.e. the canonical Lyons lift). This has implications when $x = x(\omega)$ is random when some important applications demand precise tail estimates for the random variable $M(x(\omega))$. In this talk we work with a general class of Markovian rough paths and prove an almost-Gaussian tail estimate for $M(x(\omega))$. We comment on the relevance of these estimates for some of the applications mentioned above. (Received February 13, 2015)