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Moments of cubic L-functions over function fields.

I will focus on the mean value of L -functions associated to cubic characters over $\mathbb{F}_q[t]$ when $q \equiv 1 \pmod{3}$. I will explain how to obtain an asymptotic formula which relies on obtaining cancellation in averages of cubic Gauss sums over function fields. I will also talk about the corresponding non-Kummer case when $q \equiv 2 \pmod{3}$ and I will explain why this setting is somewhat easier to handle than the Kummer case, which allows us to prove some better results. This is joint work with Chantal David and Matilde Lalin. (Received August 29, 2019)