



**HEP 2013
Stockholm
18-24 July 2013**



Contribution ID: 568

Type: **Poster Presentation**

Probing QCD with top-quark pairs at CMS

The measurements of top quark pair inclusive and differential cross sections are compared with different higher-order QCD predictions. Among other studies, the data allow for tests and determinations of QCD-parameters, such as those related to the scales for renormalization and factorization and for the matching between the matrix-element and parton-shower level. The top-quark mass and the strong coupling constant from the top-quark production rate can also be determined.

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Track Classification: Top and Electroweak Physics