



# *EINLADUNG*

im Rahmen des Teilchenphysikseminars

zum Vortrag

von

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über

## **„Top quark pair production and decay with jet activity at the LHC“**

### **Abstract:**

A deep theoretical understanding of  $t\bar{t}$  production and decay is crucial for many measurements of top quark properties that are being carried out at the LHC.

A significant fraction of  $t\bar{t}$  events is accompanied by additional jet activity arising from QCD radiation.

Being able to provide an accurate description of the latter is thus an important aspect of the modelling process.

On top of that, precise predictions for  $t\bar{t} + \text{jets}$  are key ingredients for the analysis of other important channels as well, such as  $t\bar{t}H(H \rightarrow b\bar{b})$  production at the LHC. In this talk we will address some theoretical issues of interest to accurate  $t\bar{t} + \text{jets}$  calculations. The emphasis is on estimates of fiducial cross sections and on the associated uncertainties.

Taking the case study of top-pair production and decay in association with two jets ( $t\bar{t}jj$ ) we will discuss the impact of QCD corrections and radiative effects to production and decay subprocesses.

In the next step, we will focus on the special case  $t\bar{t}b\bar{b}$  and investigate the size of the non-factorisable effects. A kinematical approach for the categorisation of prompt b-jets will be also discussed.

**Zeit:** Dienstag, **07.11.2023, 16:15 h**

**Ort:** Erwin-Schrödinger-Hörsaal, Boltzmannngasse 5, 5. Stock

**Join Zoom Meeting** - Meeting ID: 933 4269 3866 Passcode: 185096

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gez.: A. Hoang, M. Procura, A. Broggio