Title: Measurement of the top quark properties

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Abstract: This Thesis presents the ATLAS experiment measurement of the top quark differential cross-section as a function of p_{T}, mass and rapidity of the $\mathrm{t\bar{t}}$ system. A sample of approx. 4.7 fb^{-1} of the 2011 pp collision data at the center-of-mass energy of 7 TeV was analyzed. The differential spectra shapes in the $\mathrm{t\bar{t}}$ system are consistent with the Standard Model and reasonably described by the event generators.
Several activities in the scope of ATLAS Distributed Computing are presented, particularly in the area of operations, monitoring, automation, and development of the PanDA Workload Management System. Such activities aim to improve efficiency and facilitate the use of distributed computing resources and therefore contribute in supporting the ATLAS Physics Program.

Keywords: ATLAS, top quark, differential cross-section, missing transverse energy, ATLAS Distributed Computing