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Autore	de Aquino Priscila
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Nota di contenuto	Introduction -- The Standard Model -- Gravitation in Beyond Standard Model theories -- The LHC and collision simulations -- Phenomenology of graviton production -- Gravitino production at the LHC -- Epilogue -- Massless graviton implementation -- New routines for ADD theories in MadGraph -- ALOHA.
Sommario/riassunto	This thesis provides an introduction to the physics of the Standard Model and beyond, and to the methods used to analyse Large Hadron Collider (LHC) data. The 'hierarchy problem', astrophysical data and experiments on neutrinos indicate that new physics can be expected at the now accessible TeV scale. This work investigates extensions of the Standard Model with gravitons and gravitinos (in the context of supergravity). The production of these particles in association with jets is studied as one of the most promising avenues for researching new physics at the LHC. Advanced simulation techniques and tools, such as

algorithms allowing the computation of Feynman graphs and helicity amplitudes are first developed and then employed.