1. Introduction

Gravitinos in supersymmetric theories can have important cosmological con-
sequences. Stable gravitinos can overclose the universe while unstable gravitinos can
affect the expansion rate of the universe during eras prior to their decay. The decay
products of unstable gravitinos can also overclose the universe or affect light
element abundances generated during nucleosynthesis. These cosmological con-
sequences are a function of the gravitino energy density, \( \rho_G = m_G n_G \), where \( m_G \) and
\( n_G \) are the mass and number density of gravitinos.

In a non-inflationary universe, \( n_G \sim T^3 \) and therefore cosmological constraints
on the energy density of gravitinos provide bounds on \( m_G \), and equivalently on
the scale of supersymmetry breaking.\(^1\)\(^,\)\(^2\) In an inflationary universe, \( n_G \) is also
a function of the reheat temperature, and so for a fixed \( m_G \), often taken to be