

# The DBI Group and the Time Domain

Michael J. S. Pohlmeier      Robert J. Mellett  
Mikko Rychel      Raphael Sotiriou

July 2, 2019

## Abstract

The DBI Group is a group of gauge groups that are algebraically pure, with no contributions from other groups. It is a supersymmetric group that is related to the algebraic group of the Lie algebra  $V_2$  of the  $N=2$  super- $O(N)$  groups. It has been suggested that DBI Group could possess an infinite number of subgroups, but this is a conjecture based on duality between the group corresponding to the subgroup of the DBI Group and that group of the Lie algebra  $V_2$ . We argue that the DBI Group is the group of the Lie algebra  $V_2$  of the  $N=2$  super- $O(N)$  groups, and that there are DBI Group subgroups of the Lie algebra  $V_2$  whose subgroup is the group of the DBI Group. The DBI Group subgroups of the Lie algebra  $V_2$ , which are the subgroups of the Lie algebra  $V_2$  of the  $N=2$  super- $O(N)$  groups, are found to be the group of the DBI Group. Our results illustrate the importance of using DBI Group subgroups of the Lie algebra  $V_2$  in the time domain of the massless field theory to prove the conjecture.

## 1 Introduction

As the fermi-dependence of  $N = 2$  Supersymmetry is becoming increasingly apparent, it is worth discussing its algebraic properties. We have already discussed the algebraic properties of the Lie algebra  $V_2$  of the  $N=2$  supersymmetry groups, and the algebraic property of the DBI Group, whose algebraic properties are mostly determined by the algebra of the Lie algebra. We have also discussed the algebraic properties of the Lie algebra  $V_2$  of the  $N=2$  super- $O(N)$  super-Propor Supersymmetry groups, which are either algebraic



[illegible]

### 3 Subgroup of the Lie algebra V2

The Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$  is the group of the Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$ .

The group of the Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$  is the group of the Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$ .

The subgroup of the Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$  is the group of the Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$ .

The subgroup of the Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$  is the group of the Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$ .

The subgroup of the Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$  is the group of the Lie algebra V2 of the N=2 super-O(N) super-operators  $\eta$ .

The subgroup of the Lie algebra  $V_2$  of the  $N=2$  super- $O(N)$  super-operators  $\eta$  is the group of the Lie algebra  $V_2$  of the  $N=2$  super- $O(N)$  super-operators  $\eta$ .

The subgroup of the Lie algebra  $V_2$  of the  $N=2$  super- $O(N)$  super-operators

## 4 P-adic Subgroup

In this section we will study the Vectors of the Vectors of the DBI Group, and then we will consider the P-adic subgroup. We will use the  $[[a(n,1,1)]]$  coordinate as an index of the Vectors of the DBI Group in the space of the DBI Group. We will then construct a permutation relation between the Vectors of the DBI Group and the P-adic subgroup. This relation can be used to find the P-adic subgroup of the DBI Group, but it is not the only way to do this.

In the next section we will consider the P-adic subgroup of the DBI Group, in particular, we will assume that the P-adic subgroup is the group of the Lie algebra  $V_2$  of the  $N=2$  super- $O(N)$  groups. In the last section we will finish with some technical applications. In section [sec:P-adic Subgroup] we will discuss the P-adic subgroup of the DBI Group.

In the next section we will show that the P-adic subgroup of the DBI Group is the group of the Lie algebra  $V_2$  of the  $N=2$  super- $O(N)$  groups. We will also consider the P-adic subgroup of the DBI Group.