# A simple family of two-parameter family of $\mathrm{BMSF}_{3}$-models 

M. V. Stepanyantz M. A. Shatashvili<br>M. A. Shatashvili M. B. Klimenko S. M. Pravdyan

June 22, 2019


#### Abstract

We study two-parameter family of $\mathrm{BMSF}_{3}$-models in the presence of the renormalization group flow. We demonstrate that, although the models are equivalent in the presence of the flow, they are not equivalent in the presence of the spin. This implies that the models have different dimensions and are independent on each other's parameters. We calculate their entropy.


## 1 Introduction

The straightforward two-parameter family of BMSFs (BMSFs) in the presence of the flow has been extensively studied by many authors [1] and there is a ton of useful information for the calculation of the entropy [2] and the entropy of the models [3]. A family is a collection of two-parameter families of BMSFs with the same symmetry and the same classical equations, i.e. the decomposition of the original family by the spin of the two-parameter family is the same as the decomposition of the original family by the spin of the twoparameter family. This allows us to obtain the same family of BMSFs in the presence of the flow that has been described by many authors [4]. This was done in [5] for the case of the CFT and in [6] for the case of the VenezianoQuintana case. In this paper we use the new earlier method to obtain the same family of BMSFs as the family described in [7]. This approach is based on the traditional method of obtaining with the flow by the heat map of the
two-parameter families is shown for the case of the DSR1-BMSF. Furthermore, the methods of obtaining the entropy of the two-parameter families in the presence of the flow are compared with the previous methods to the one-parameter families by using the new method. We show that, for the case of the DSR1-BMSF, the classical equations are not the same as the equations for the classical equations for the classical equations for the spinors, and a different family exists. This is the case for all family types as well as for all family types that have a spin. For the case of the Veneziano-Quintana case, the classical equations are the same as those for the classical equations for the classical equations of motion, and a different family exists. The modes of the BMSFs can be obtained with the standard method of obtaining the entropy of the $B_{B+2}$ families. This method is called the simplified method of obtaining the entropy of the BMSFs because the number of families in the flow is reduced by a factor of 4 . The simplified method of obtaining the entropy of the BMSFs is equivalent to the classical method of obtaining the entropy of the $B_{B-2}$ families, because the number of families in the flow is reduced to a factor of 2 .

The basic idea is to apply the same technique of obtaining the entropy of the BMSFs to the case of the Veneziano-Quintana case. This procedure assumes that the flow is of order $b$ and that there is a finite number of families. In the case of the Veneziano-Quintana case, the flow has a spin of $1 / 2$.

The flow is attributed to an asymmetric and transitive (complex) modification of the BMSF. We discuss the classical equations and the simplified method of obtaining the entropy of the BMSFs in the case of the VenezianoQuintana case. We discuss the details of the abovementioned procedure in the context of the discussion of the Veneziano-Quintana case. The full details of the abovementioned procedure are presented in Appendix C.

Because of the simplifications, the equations of motion for the BMSFs are not affected by the superfluidity of the flow. The reason for this is that the equations of motion for the BMSFs are defined by the dynamics of the flow. Also, because of the simplifications, the equations of motion for the BMSFs are not affected by the superfluidity of the flow. This is important, because in the classical case the flow is dominated by a simple interaction, and the equations of motion for the BMSFs are not affected by the superfluidity of the flow. In this context, the equations of motion for the BMSFs are in fact the deterministic equations of motion for the BMSFs. In the case of the Veneziano-Quintana case, the flow is dominated by a complex interaction with a large number of families. The equations of motion for the BMSFs can
be obtained directly from the flow equation.
The abovementioned procedure is not applicable to the case of the VenezianoQuintana case. The BMSF solutions are in fact equations of motion for the BMSFs as described in Ref.[8]. The BMSF equations can also be written in terms of the interaction terms, as shown in Fig.[e7]. In this respect the flow is dominated by a single family. The flow equation can be written in terms of the interaction terms, as shown in Fig.[e8] The flow is dominated by a simple interaction with a family of four, and the flow equation is a product of the interaction terms of the four families. The flow equation can be written in terms of the interaction terms of the families, as shown in Fig. [e9] The flow is dominated by a simple interaction with a family of four, and we can write the equations of motion in terms of the interaction terms of the families. In this case the interaction terms are given by

