Summary of symmetry calculations

July 29, 2021

Contents

Chapter 1

hydons_model

Run 01_05PM_26_July-2021

Degree in tangential ansätze: 1
The system of ODEs is given by:

$$\frac{\mathrm{d}y_1}{\mathrm{d}t} = \frac{ty_1 + y_2^2}{-t^2 + y_1 y_2},$$
$$\frac{\mathrm{d}y_2}{\mathrm{d}t} = \frac{ty_2 + y_1^2}{-t^2 + y_1 y_2}.$$

The calculated generators are:

$$X_1 = (t)\,\partial t + (y_1)\,\partial y_1 + (y_2)\,\partial y_2$$

Run 01_09PM_26_July-2021

Degree in tangential ansätze: 1
The system of ODEs is given by:

$$\frac{\mathrm{d}y_1}{\mathrm{d}t} = \frac{ty_1 + y_2^2}{-t^2 + y_1 y_2},$$
$$\frac{\mathrm{d}y_2}{\mathrm{d}t} = \frac{ty_2 + y_1^2}{-t^2 + y_1 y_2}.$$

The calculated generators are:

$$X_1 = (t)\,\partial t + (y_1)\,\partial y_1 + (y_2)\,\partial y_2$$

Run 01_21PM_26_July-2021

Degree in tangential ansätze: 1
The system of ODEs is given by:

$$\frac{\mathrm{d}y_1}{\mathrm{d}t} = \frac{ty_1 + y_2^2}{-t^2 + y_1 y_2},$$
$$\frac{\mathrm{d}y_2}{\mathrm{d}t} = \frac{ty_2 + y_1^2}{-t^2 + y_1 y_2}.$$

The calculated generators are:

$$X_1 = (t)\,\partial t + (y_1)\,\partial y_1 + (y_2)\,\partial y_2$$

Run 04_01PM_28_July-2021

Degree in tangential ansätze: 1
The system of ODEs is given by:

$$\frac{\mathrm{d}y_1}{\mathrm{d}t} = \frac{ty_1 + y_2^2}{-t^2 + y_1 y_2},$$
$$\frac{\mathrm{d}y_2}{\mathrm{d}t} = \frac{ty_2 + y_1^2}{-t^2 + y_1 y_2}.$$

The calculated generators are:

$$X_1 = (t)\,\partial t + (y_1)\,\partial y_1 + (y_2)\,\partial y_2,$$
$$X_2 =$$

Run 11_15AM_29_July-2021

Degree in tangential ansätze: 1
The system of ODEs is given by:

$$\frac{\mathrm{d}y_1}{\mathrm{d}t} = \frac{ty_1 + y_2^2}{-t^2 + y_1 y_2},$$
$$\frac{\mathrm{d}y_2}{\mathrm{d}t} = \frac{ty_2 + y_1^2}{-t^2 + y_1 y_2}.$$

The calculated generators are:

$$X_1 = (t)\,\partial t + (y_1)\,\partial y_1 + (y_2)\,\partial y_2$$

Chapter 2

Lotka_Volterra

Run 01_19PM_26_July-2021

Degree in tangential ansätze: 1
The system of ODEs is given by:

$$\begin{aligned}\frac{\mathrm{d}N}{\mathrm{d}t} &= N\left(-Pb+a\right),\\ \frac{\mathrm{d}P}{\mathrm{d}t} &= P\left(Nc-d\right).\end{aligned}$$

The calculated generators are:

$$X_1 = (1)\,\partial t$$

Run 01_29PM_26_July-2021

Degree in tangential ansätze: 1
The system of ODEs is given by:

$$\begin{aligned}\frac{\mathrm{d}N}{\mathrm{d}t} &= N\left(-Pb+a\right),\\ \frac{\mathrm{d}P}{\mathrm{d}t} &= P\left(Nc-d\right).\end{aligned}$$

The calculated generators are:

$$X_1 = (1)\,\partial t$$