Some notes on the fibrations

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September 25, 2014

Some notes on the conventions used for fibration data within our code.

Contents

1 $SU(2)$ $N_f = 1$

From section 2 of 9706145 (Bilal-Ferrari)

$$y^2 = x^2(x-u) + \frac{m\Lambda^3}{4}x - \frac{\Lambda^6}{64} \tag{1}$$

rescaling y by a factor of 2, and shifting $z \to z + u/3$ brings this into Weierstrass normal form

$$\begin{aligned} y^2 &= 4z^3 - g_2(u)z - g_3(u) \\ g_2(u) &= -\Lambda^3 m + \frac{4u^2}{3} \\ g_3(u) &= \frac{\Lambda^6}{16} - \frac{\Lambda^3 m u}{3} + \frac{8u^3}{27} \end{aligned} \tag{2}$$

which is the form appearing in the code.