Geometrische Mechanik

13. Verify that

$$\frac{1}{4I_1}\begin{pmatrix} 0 & 0 & 0 & -a^2 \\ 0 & 0 & a^2 & 0 \\ 0 & 4 & 0 & -4a \\ -4 & 0 & 4a & 0 \end{pmatrix} = \frac{1}{4I_1}\Big[\begin{pmatrix} 0 & -2a & 0 & 0 \\ 2a & 0 & 0 & 0 \\ 0 & 0 & 0 & -2a \\ 0 & 0 & 2a & 0 \end{pmatrix} + \begin{pmatrix} 0 & 2a & 0 & -a^2 \\ -2a & 0 & a^2 & 0 \\ 0 & 4 & 0 & -2a \\ -4 & 0 & 2a & 0 \end{pmatrix}\Big]$$

    is the decomposition into Jordan normal form.

14. Show that $\{\mu_3, \ell_3\} = 0$.