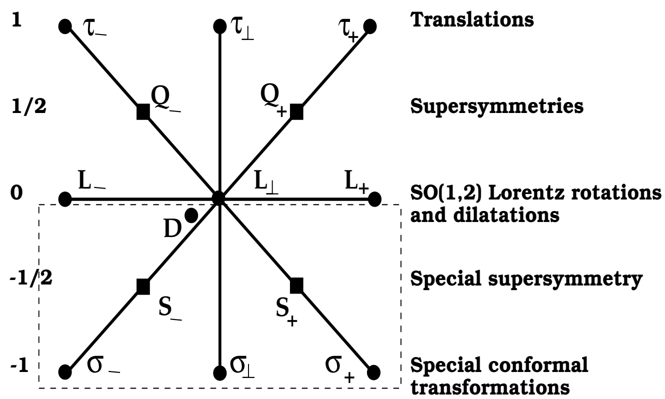

Figure 1: The root diagram of $SO(2,3)$. The bosonic weights are represented by circles, and the fermionic weights by squares. The dilatation charge of horizontal planes in the diagram are on the left, while the worldvolume theory interpretation of the planes of generators are labelled to the right. The supersolvable algebra is the boxed subalgebra.

where ρ, x, t, w, θ^A are the bosonic and fermionic coordinates. From the left invariant form,

$$\begin{aligned} \Omega &= L^{-1}dL = \Omega_B + L_B^{-1}\Omega_F L_B \,, \\ \Omega_F &= L_F^{-1}dL_F \,, \end{aligned} \tag{2.4}$$

one derives the vielbeins[2],

$$\begin{aligned} E^0 &= -\rho dt - \rho\bar{\theta}^A\gamma^0 d\theta^A, \\ E^1 &= \rho dw - \rho\bar{\theta}^A\gamma^1 d\theta^A, \\ E^2 &= \frac{1}{2\rho}d\rho, \\ E^3 &= \rho dx - \rho\bar{\theta}^A\gamma^3 d\theta^A, \end{aligned} \tag{2.6}$$

and

$$\psi^A = \sqrt{2e\rho}\begin{pmatrix} 0 \\ 0 \\ d\theta_1^A \\ d\theta_2^A \end{pmatrix}, \tag{2.7}$$

Notice that, due to the (anti) commutation relations (2.2) of the solvable Lie algebra parametrization, the exponentiation (2.3) only contains a finite number of terms. Hence, it immediately follows that the vielbeins are at most quadratic in their anti–commuting coordinates. For a discussion on this see [5, 18].

Another convenient feature of the solvable Lie algebra parametrization is that one projects out half of the spinors. This is equivalent to the projection of the κ–symmetry operator and thus at this stage the κ symmetry has already been fixed.

[2] For the fermionic coordinates the following notation is understood: $\bar{\theta}^A = \theta^A\gamma^0$ and

$$\theta^A = \begin{pmatrix} \theta_1^A \\ \theta_2^A \\ 0 \\ 0 \end{pmatrix}. \tag{2.5}$$