$$= (1,0,0,0)$$

$$= (0,0,0,1)$$

-          +

$$\pm \;=\; \pm \;\sqrt{2\;-\;2}$$

+   -

−

+

3 Horizons of Kerr Black Holes in Depth

$= (\quad ,0, \quad , \quad)$

$+$ $+$ $+$ $+$

$= 0$ $\qquad = \dfrac{\overline{\quad}}{2\quad_+}$

$= \ (1,0,0,\quad)$

$= \dfrac{\overline{\quad}}{2\quad_+}$

r_+

r_+ $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad r_+$

$$^2 = \ {}_+^2(\ )\ ^2 + \left(\dfrac{2\quad_+}{_+(\ )}\right)^2 \quad ^2 \quad ^2$$

$(\ ) = 8\quad_+$

4 Equatorial Orbits

$$= \ \text{---} \ = \frac{1}{\ }\left[\left(\ ^2 + \ ^2 + \frac{2 \ \ 2}{\ }\right) \ - \frac{2}{\ }\right]$$

$$= \ \text{---} \ = \frac{1}{\ }\left[\left(1 - \frac{2}{\ }\right) \ + \frac{2}{\ }\right]$$

u

u u

$$\text{---} = \ \sqrt{\ ^2 - 1 + \ \text{---} \ - \frac{2 - \ ^2(\ ^2 - 1)}{2\ ^2} + \ \frac{(\ -a\ )^2}{3}}$$

$^2-$

-

r_+

$\frac{2-1}{2}$

$\frac{1}{2}($

fl

5 The Ergosphere

$$= (-, 0, 0, 0)$$

$$\cdot \quad = \quad (\quad)^2 = -\left(1 - \frac{2}{2}\right)(\quad)^2 = -1$$

$(\ )$

$$(\ ) = \quad + \quad \overline{2 - 2 \quad 2}$$

( )

0   2   1

( )   r$_+$