

Exact Space-Times in Einstein's General Relativity:

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Errata

1 Errors

Page 167, line 34: Correct the accent on Peldán.

Page 192, second full paragraph. Replace the complete paragraph by the following:

A further asymptotically flat, static, axially symmetric solution that describes a magnetic (or electric) dipole was given by Bonnor (1966a). This was further analysed by Emparan (2000), who argued that it represents two extreme Reissner–Nordström sources with equal mass and opposite (magnetic) charge, which he calls a *black dihole*. The two sources are held apart with a fixed distance between their horizons either by two semi-infinite cosmic strings or by a strut, represented by conical singularities. It was subsequently observed (see the note in Emparan and Teo, 2001) that this solution had also been obtained in a different form by Chandrasekhar and Xanthopoulos (1989). Emparan (2000) has also shown that the conical singularities could be eliminated by an appropriately chosen additional magnetic field.

Pages 316–317: Modify the paragraph overlapping these pages to remove the parameter α .

Page 321: Correct figure 16.2 to remove the $\alpha \neq 0$ non-expanding case.

Page 357, line 3: remove the words “For example, in the particular case $\alpha = 0$ ”.

Page 455: Equation (22.14) should contain a cosmological constant term $+\frac{\Lambda}{3}R^2$.

Page 455, line 13: The first paragraph should start as – “In the case of a zero cosmological constant, the equation ...”.

Page 458, line 19: Insert “with $\Lambda = 0$ ”.

Page 488, line 9: The final page number is wrong in the reference

da Silva, M. F. A., Herrera, L., Paiva, F. M. and Santos, N. O. (1995b). The parameters of the Lewis metric for the Weyl class, *Gen. Rel. Grav.*, **27**, 859–871.

Page 488, line 25: Incorrect spelling of “Gauthier” in the reference

Darmois, G. (1927). *Mémorial des sciences mathématiques*, (Gauthier-Villars, Paris).

Page 488, last 7 lines: Unify the references to de Sitter (1917 a and b).

Page 490, line 21: Incorrect spelling of “conformally” in the reference

Edgar, S. B. and Ludwig, G. (1997b). Integration in the GHP formalism III: finding conformally flat radiation metrics as an example of an ‘optimal solution’, *Gen. Rel. Grav.*, **29**, 1309–1328.

Page 496, line 36: Incorrect order of initials in the reference

Hawking, S. W. and Ellis, G. F. R. (1973). *The large scale structure of space-time*, (Cambridge University Press).

2 Additional references

Empanan, R. and Teo, E. (2001). Macroscopic and microscopic description of black diholes, *Nuclear Physics B*, **610**, 190–214. §10.8.1

3 Formatting problems

Page 44/45: Bad page break followed by bad line breaks.

Change¹ the beginning of the sentence starting at the bottom of page 44 to —
“In particular, it may be noticed that the spacelike sections ...”

Pages 78–84: The page breaks differ from those of the submitted manuscript and the final proofs. Mostly, this does not matter, but a bad page break has been introduced at 83/84.

Page 99: This is an old version of Figure 7.1. An updated version had been submitted and was included in the final proofs.

Page 467: This is an old version of Figure A.4. An updated version had been submitted and was included in the final proofs.

¹This change was suggested at the final proof stage, but a different change was implemented that made matters worse.