Comment on "Space-times with plane-symmetric scalar waves" [J. Math. Phys. 33, 3506 (1992)]

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The author of Ref. 1 claims to have proven that a general plane symmetric solution of the Einstein field equations with a scalar field source is either static or spatially homogeneous. Such a statement is contained in the abstract and in the conclusion of the paper. An inspection of its contents reveals, however, that this result was obtained with use of the additional assumption: that the scalar field obeys the flat space wave equation in the variables (t,z). This is a rather strong assumption, with no clear physical meaning, and so the true result of the paper is much weaker than it is claimed to be. Were the result really as strong as claimed, it would imply a serious flaw in the rather famous paper by Tabensky and Taub.[2]

[1] Jianzeng Li, J. Math. Phys. 33, 3506 (1992).
[2] R. Tabensky and A. H. Taub, Commun. Math. Phys. 29, 61 (1973).

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