ANNALES DE L'I. H. P., SECTION A

M. SACHS

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Annales de l'I. H. P., section A, tome 35, n° 2 (1981), p. 173

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Ann. Inst. Henri Poincaré, Section A :
Vol. XXXV, n° 2, 1981, p. 173. *Physique théorique.*

A Reply to Leung on Stellar Collapse

by

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(1) Leung's argument [*1*] was based on his (false) assumption that I was attempting [*2*] to answer the question: are there inflection points in the motion of the elements of a star, as it collapses—corresponding to the presence of both attractive and repulsive components of the gravitational force? In my analysis, however, I used the feature at the outset that two inflection points in the motion do exist, generally, according to general relativity theory. It was my problem to estimate approximately where they would be, if present.

(2) With this starting point, I then assumed that (only) at the instant of the turn-around one might approximate the actual metrical field of the star, that a test body responds to, in terms of an Einstein solution for constant matter density—i. e. the boundary condition that leads to the interior Schwarzschild solution. But it was not at all assumed that this is a valid solution during the evolution of the star, from collapse to expansion to collapse, etc., as Leung implied I was saying, in his kinematic argument.

REFERENCES

[*1*] P. T. LEUNG, *Ann. Inst. Henri Poincaré*, Section A : Physique théorique, t. **XXXIII**, n° 2, 1980, p. 205-208.

[*2*] M. SACHS, *Ann. Inst. Henri Poincaré*, Section A : Physique théorique, t. **XXVIII**, n° 4, 1978, p. 399-405.

(Manuscrit reçu le 3 avril 1981)

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