PART V

THE STRUCTURE OF SINGULARITIES

(Chairman: J. A. Wheeler)

GENERAL SOLUTIONS OF THE EQUATIONS OF GENERAL RELATIVITY NEAR SINGULARITIES

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DISCUSSION

Zel'dovich: I should like to stress that, as already written in the Lifshitz-Khalatnikov article of 1963, despite the inhomogeneity of the metric, the asymptotic solution for the density is homogeneous in the quasi-isotropic solution $\varrho = 3/32\pi Gt^2$. Only the next term in the expansion is inhomogeneous

$$\varrho = \frac{3}{32\pi Gt^2} (1 + tb(x) + t^2 c(x) + \cdots).$$

This is just what is needed to obtain two properties (i) all homogeneous theories of primordial nucleo-synthesis are valid (see the report by Wagoner in this volume) and (ii) the perturbations needed to explain galaxy formation are included.

I should also stress the role of Landau in inspring this work. This remark does not diminish the acheivements of the authors of the present paper. The illness and death of Landau who had broad interests in cosmology is a tragedy which all of us feel even at the present day.