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Theory of Grid ionisation Chambers

by **O. Buneman** (Harwell).

The efficiency is calculated with which a grid can shield the collector plate of an ionisation chamber from fields induced by the positive charge in the ionisation tracks. Further, conditions are calculated for all electrons from the tracks to be collected on the plate rather than being intercepted by the grid. Formulae are given which enable the designer to choose geometries and potentials such that both complete collection and high efficiency are achieved. The theory is developed for both planar and cylindrical chamber geometries and for all practical grid mesh dimensions. There is good agreement with experiments.

A full account of the theory is published in the Canadian Journal of Research, vol. **27**, p. 191 (1949) in a paper entitled: "Design of Grid Ionisation Chambers" by O. BUNEMAN, R. E. CRANSHAW and J. A. HARVEY.