物理

基于等比级数公式的积累因子拟合

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摘要　　从积累因子随穿透深度增加而增大的物理原理入手，简要说明积累因子等比级数拟合公式的推导思路，并给出各参数的物理意义。采用该公式对积累因子进行拟合时，程序编写困难。通过对各参数进行分析，给出一套程序编写方案。采用几种现行的积累因子拟合方案对几种典型的积累因子数据进行拟合，证明等比级数拟合公式最优。对几种常用屏蔽材料在不同入射γ射线能量下的照射量积累因子进行拟合，并给出等比级数拟合公式系数，拟合结果的最大相对偏差均在±5%以内。

关键词　物理原理　等比级数　积累因子　拟合

分类号

Reproduce Buildup Factors Based on Geometrical Progression Formula

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Abstract Geometrical progression formula of gamma-ray buildup factor was introduced by the physics principle of the buildup factor increasing with increasing penetration depth. Physical significance of each parameter was described. It was very difficult to write the geometrical progression fitting code for buildup factor, but steps of the fitting procedure were introduced by analyzing each parameter. The advantage of geometrical progression formula was proved by compared with fitting results of other actual expressions for several typical data of buildup factor. The formula can accurately reproduce the data within ±5% by fit the exposure buildup factor of some materials at different source energy, which is most commonly used.

Key words   physics   principle   geometrical   progression   buildup   factor   fitting

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