

# keV离子辐照固态腺嘌呤与胞嘧啶的剂量效应研究

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研究了经20keV的氮离子、氩离子辐照后,腺嘌呤与胞嘧啶的残存率与注入剂量的关系。结果表明,在相同的剂量下,氮离子对碱基的损伤比氩离子高,而对同种离子而言,胞嘧啶比腺嘌呤表现出较高的辐射敏感性。计算了碱基分子损伤的G值,发现它们随剂量的增大呈减小的趋势。考察了加入自由基清除剂后,碱基损伤剂量效应的变化。并对上述结果提出了初步的解释。

## DOSE EFFECT OF keV IONS IRRADIATION ON ADENINE AND CYTOSINE

Dose effect of adenine and cytosine irradiated by 20 keV  $N^+$  and  $Ar^+$  was studied. It was found that  $N^+$  can damage more base molecules than  $Ar^+$  at the same dose, and cytosine shows a higher sensitivity than adenine irradiated by the same kind of ion. G-values of the damaged bases were calculated, and they presented a decreasing tendency with the dose increasing. The influence of radical eliminator on dose effects was investigated, and preliminary explanations to all these results were provided as well.

### 关键词

离子辐照(Ion implantation); 腺嘌呤(Adenine); 胞嘧啶(Cytosine); 剂量效应(Dose effect)