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铀-钚-锆燃料合金物性模型

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摘要 文章用最小二乘法对数据的直接数学拟合或确定物理表式常数两种方法建立了铀-钚-锆燃料合金的物性模型,变量为组成和温度。物性包括密度、固相线(液相线)温度、热膨胀、比热容和热导率。在置信度为95%时,模型的不确定度分别为±0.5%,±5.7%,±5.5%,±5.0%和±9.7%。这些模型也适用于铀-锆合金。

关键词 铀-钚-锆合金 快堆金属燃料 物性模型

分类号

MODELING OF PHYSICAL PROPERTIES FOR U-Pu-Zr FUEL ALLOYS

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Abstract Five physical properties correlations are developed as functions of temperatureand local composition for FBR fuel--U--Pu--Zr alloy. The properties of interestinclude RT theoretical density, solidus (liquidus) temperature, thermal expansion,specific heat capacity and thermal conductivity. The uncertainties in models areestimated to be 0.5%, 5.7% , 5.5%, 5.0% and 9.7% respectively for the 95%confidence limit. These models are also suitable to U--Zr alloy also.

Key words U-Pu-Zr alloy FBR metallic fuel Models for physical property

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