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技术交流

γ能谱法在快堆新燃料^{235}U富集度核实测量中的应用

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摘要　对快堆新燃料组件铀富集度进行了非破坏性核实测量，γ能谱法是测量铀富集度首选方法之一，快堆新燃料235U富集度真实值为64.4%【1】，235U富集度越高测量分析需要时间相对越长，本次核实测量工作量大，环境本底高，精确测量十分困难，对系统硬件的要求很高，能谱解析和数据处理过程更复杂。本次对多根燃料单棒实施了γ能谱法测量，利用专业的软件分析得到235U富集度与真实值绝大部分偏差在3%以内。

关键词　γ能谱法　快中子反应堆　铀富集度

分类号

Application of γ　NDA Method in Fast Neutron Reactor Fresh Fuel's Uranium Enrichment Measurement

Abstract　γ-ray spectrometry is used to measure fast neutron reactor fuel's uranium enrichment; this kind method is one of most important nondestructive assay method. 235U enrichment in fast neutron reactor fuel is 64.4%. Measuring time is proportional to 235U enrichment in material. We measured several fuel rods. It is difficult to do accuracy measurement in high background condition. We choose professional hardware and software to do work. As a result, most deviation between measured 235U enrichment and true value less than±3%.

Key words　γ-ray spectrometry　fast neutron reactor　uranium enrichment

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