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## **A measuring method for abundance of uranium components based on active source of neutron**

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### **ABSTRACT**

The correlation between the data of neutron within exterior source for uranium-active-detecting and the data of neutron passing through target uranium is analyzed and processed by establishing a mathematical model for initiative components of uranium fission in this paper. The results indicate that there is a sort of relation between cross-correlation function of the exterior source data and the date of detection and the probability of fission produced by single neutron in uranium components. This relation is defined as a capacity coefficient of the fission produced by single neutron in uranium components, and it could be calculated through the cross-correlation function. When the performance of source neutron tends to be stable, the abundance of the uranium components could be determined by the capacity coefficient. This method would be applied widely in nuclear disarmament, civil nuclear material detection, etc.

**KEYWORDS:** the abundance of uranium components, cross-correlation function, capacity coefficient of the fission