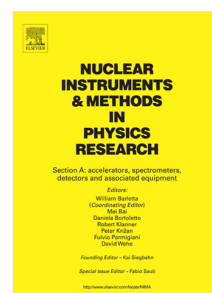


## Accepted Manuscript

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PII: S0168-9002(17)30762-3  
DOI: <http://dx.doi.org/10.1016/j.nima.2017.07.022>  
Reference: NIMA 59971

To appear in: *Nuclear Inst. and Methods in Physics Research, A*

Received date: 11 February 2017  
Revised date: 16 June 2017  
Accepted date: 13 July 2017

Please cite this article as: Y. Seki, A. Taketani, T. Hashiguchi, S. Wang, M. Mizuta, Y. Wakabayashi, Y. Otake, Y. Yamagata, H. Baba, K. Kino, K. Hirota, S. Tanaka, Fast neutron transmission imaging of the interior of large-scale concrete structures using a newly developed pixel-type detector, *Nuclear Inst. and Methods in Physics Research, A* (2017), <http://dx.doi.org/10.1016/j.nima.2017.07.022>

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# Fast neutron transmission imaging of the interior of large-scale concrete structures using a newly developed pixel-type detector

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## Abstract

Given the increased demand for nondestructive inspections of the insides of bulk concrete structures, in this paper, we propose a new transmission imaging system that uses fast neutrons via an accelerator-driven compact neutron source. A key component that we have developed is a pixel-type fast neutron detector that consists of a  $4 \times 4$  array of plastic scintillators with semiconductor photon sensors. Using neutron transmission images obtained with this detector, we have successfully identified a steel bar, a void hole, and water with 300-mm-thick concrete blocks via a RIKEN Accelerator-driven compact Neutron Source (RANS).

**Keywords:** fast neutron imaging, fast neutron detector, compact neutron source, nondestructive inspection

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