



Experimental verification of neutron phenomenology in lead and of transmutation by adiabatic resonance crossing in accelerator driven systems

A summary of the TARC Project at CERN

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The TARC Collaboration

Abstract

The Transmutation by Adiabatic Resonance Crossing (TARC) experiment was carried out as PS211 at the CERN PS from 1996 to 1999. Energy and space distributions of spallation neutrons (produced by 2.5 and 3.57 GeV/*c* CERN proton beams) slowing down in a $3.3 \times 3.3 \times 3 \text{ m}^3$ lead volume and neutron capture rates on long-lived fission fragments ^{99}Tc and ^{129}I demonstrate that Adiabatic Resonance Crossing (ARC) can be used to eliminate efficiently such nuclear waste and validate innovative simulation. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: TARC; Nuclear waste; Transmutation; Spallations neutrons; Adiabatic resonance crossing; Energy amplifier
