

Study in Support of Chromium-51 Accumulation in the SM-3 Reactor to Fabricate a Neutrino Source

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High-intensity artificial Cr-51 sources are used to calibrate solar neutrino detectors. The necessary amount of Cr-51 can be obtained by irradiating chromium enriched in Cr-50 in a thermal neutron trap of the SM-3 high-flux reactor in JSC "SSC RIAR". The paper presents the analysis of irradiation options both using the existing trap and advanced trap designs to be used during the reactor future refurbishment. The feasibility to produce 3.85Ci of Cr-51 by the end of irradiation is shown.

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