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**Disclosure of the hydrogen generation and accumulation in steel and graphite irradiated in inert environment**

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In traditional power engineering hydrogen may be one of the first primary source of equipment damage. This problem has high actuality for both nuclear and thermonuclear power engineering. Study of radiation hydrogen embrittlement of the steel raises the question concerning the unknown source of hydrogen in reactors. Later unexpectedly high hydrogen concentrations were detected in irradiated graphite. So, alloying of steel and graphite by hydrogen in nuclear

reactor takes place. It is necessary to look for this source of hydrogen especially because hydrogen flakes were detected in reactor vessels of Belgian NPPs. As a possible initial hypothesis about the enigmatical source of hydrogen one can propose protons generation during beta-decay of free neutrons in as much as protons detected by researchers at nuclear reactors as witness of beta-decay of free neutrons.

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