



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

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Abstract:

In traditional power engineering hydrogen may be one of the first primary sources 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 determined in steel specimens irradiated in inert environment 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 Nuclear Power Plants. As a possible initial hypothesis about the enigmatical source of hydrogen one can propose protons generation during beta-decay of free neutrons inasmuch as protons detected by researches at nuclear reactors as witness of beta-decay of free neutrons.

Biography:

Education: Moscow Power Engineering Institute. Degree(s) or Diploma(s) obtained: Master's Degree in Material Science – 1970, Ph.D. – 1974, D.Sc. -2005. Membership of professional bodies: member of Scientific Council of RAS on Radiation Damage Physics of Solids. Professional experience record: since 1974 till now, Moscow, National Research Centre “Kurchatov



Publication of speakers:

- Krasikov E (2016) Revealing of the wave-like process in kinetics of RPV steel radiation degradation, EACS 2016 Conference, Sheffield, paper 103.
- Krasikov E (2016) Self-recovering section of RPV steel radiation embrittlement. Journal of Material Science and Engineering 5:3.
- Krasikov E (2016) Self-recovering section of RPV steel radiation embrittlement as indication of material smart behavior. Journal of Material Science and Engineering with Advancing Technology 13, 1: 53-63.
- Krasikov E (2014) Anomalous RPV steel radiation embrittlement as indication of material smart behavior. 4-th International Conference on Competitive Materials. Miskolc, Hungary.

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