CLAIMS

1. A method to obtain energy by nuclear reactions between hydrogen (31) and a transition metal ~~(19)~~, said method including the steps of:

- prearranging (110) a primary material (19) comprising a predetermined amount of cluster nanostructures (21) having a number of atoms (38) of said transition metal ~~(19)~~ lower than a predetermined number of atoms;
- keeping said hydrogen (31) in contact with said clusters (21);
- heating (130) said primary material (19) at an initial process temperature (T_1) higher than a predetermined critical temperature;
- dissociation of H_2 molecules of said hydrogen (31) and formation of H- ions (35) as a consequence of said step of heating;
- impulsively acting (140) on said primary material (19);
- orbital capture (150) of said H- ions (35) by said cluster nanostructures (21) as a consequence of said step (140) of impulsively acting;
- capture (151) of said H- ions (35) by said atoms (38) of said clusters (21), generating a thermal power as a primary reaction heat (Q_1);

removing (160) said thermal power, maintaining the temperature of the primary material (19) above said critical temperature,

characterised in that

it provides a step (115) of prearranging an amount of a secondary material (28) that faces said primary material (19) and within a predetermined maximum distance (L) from said primary material (19), said secondary material (28) arranged to interact with protons (35"') emitted from said primary material (19) by energy-releasing proton-dependent nuclear reactions that occur with a release of further thermal power in the form of a secondary reaction heat (Q_2), such that said step of removing (160) comprises said generated thermal power as said primary reaction heat (Q_1) and said secondary reaction heat (Q_2).

2. A method according to claim 1, wherein said secondary material (28) comprises Lithium, in particular said Lithium comprising predetermined fractions of ^6Li and ^7Li isotopes.

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