CLAIMS

1. A method for use in power generation comprising:

bringing a first target matter via wave resonance into a higher energy state by exposing the first target matter to electromagnetic radiation input energy for producing a first isotope shift in the first target matter and neutrons resulting from the first isotope shift,

capturing the neutrons by a second target matter, having a nuclear binding energy which is smaller than the nuclear binding energy of the isotope, or isotopes, into which it is shifted, for producing a second isotope shift in the second target matter and electromagnetic radiation output energy.~~,~~

2. The method according to claim 1, wherein the electromagnetic radiation input energy is provided in the form of a square wave signal or a sinus wave signal.

3. ~~2.~~ The method according to claim 1 or 2, wherein the electromagnetic radiation input energy is sourced by electromagnetic radiation comprising at least one resonance frequency mode comprised in a frequency interval~~.~~

~~3. The method according to claim 2~~, wherein the at least one resonance frequency mode is associated with an inter-atomic distance of the first target matter~~.~~

~~4. The method according to claim 2 or 3, wherein the at least one resonance frequency mode~~ is a gas or plasma resonance frequency mode of the first target matter, a plasma resonance that characterize magnetized and/or non-magnetized plasmas of the first target matter, or a solid/fluid/gaseous/plasma resonance frequency mode of the second target matter.

4. ~~5.~~ The method according to any of claims 1-3~~4~~, further comprising heating at least one of the first target matter and the second target matter.

5. ~~6. The method according to any of claims 1-5, further comprising, on a condition that an electromagnetic radiation output power is produced above a power threshold value,~~

~~maintaining said production of electromagnetic radiation output energy by exposing said first target matter to electromagnetic radiation maintenance energy.~~

~~7. The method according to any one of claims 1-6, wherein the electromagnetic radiation maintenance energy is sourced by electromagnetic radiation comprising at least one resonance frequency mode comprised in a frequency interval.~~

~~8. The method according to any one of claims 1-7, wherein the electromagnetic radiation maintenance energy is provided by means of a wave source.~~

~~9. The method according to any of claims 1-8, further comprising bringing the first target matter into a plasma state.~~

~~10.~~ An apparatus for power generation comprising:

a source unit for producing electromagnetic radiation input energy,

a first target matter (210), and

a second target matter (220),

~~wherein the first target matter and the second target matter are mixed, and~~

wherein the source unit is arranged to expose the first target matter to the electromagnetic radiation input energy for bringing the first target matter via wave resonance into a higher energy state, for producing a first isotope shift

in the first target matter and neutrons resulting from the first isotope shift, and ~~for capturing the neutrons by the second target matter for producing a second isotope shift in the second target matter and electromagnetic radiation output energy.~~

wherein the second target matter is arranged to capture said neutrons and has a nuclear binding energy which is smaller than the nuclear binding energy of the isotope, or isotopes, into which it is shifted after the process of neutron capture.

6.

~~11.~~ The apparatus according to claim 5, wherein the first target matter and the second target matter are mixed.

7. The apparatus according to claim 5 or 6~~10~~, further comprising a fuel container for containing said first target matter and said second target matter.

8. ~~12.~~ The apparatus according to claim 7~~11~~, wherein the fuel container is a pressure chamber.

9. ~~13.~~ The apparatus according to any one of claims 5-8~~11-12~~, wherein the source unit comprises an induction coil arrangement (120).

10. ~~14.~~ The apparatus according to any one of claims 5-9~~11-13~~, further comprising a discharge electrode unit (150).

~~15. A method for use in power generation comprising:~~

~~bringing a first target matter via wave resonance into a higher energy state by exposing the first target matter to electromagnetic radiation input energy for producing a first isotope shift in the first target matter and neutrons resulting from the first isotope shift, and~~

capturing the neutrons by a second target matter for producing a second isotope shift in the second target matter and electromagnetic radiation output energy,

wherein the electromagnetic radiation maintenance energy is sourced by electromagnetic radiation comprising at least one resonance frequency mode comprised in a frequency interval.

16. A method for use in power generation comprising:

bringing a first target matter via wave resonance into a higher energy state by exposing the first target matter to electromagnetic radiation input energy for producing a first isotope shift in the first target matter and neutrons resulting from the first isotope shift, and

capturing the neutrons by a second target matter for producing a second isotope shift in the second target matter and electromagnetic radiation output energy,

wherein the electromagnetic radiation maintenance energy is provided by means of a wave source.

17. A method for use in power generation comprising:

bringing the first target matter into a plasma state,

bringing a first target matter via wave resonance into a higher energy state by exposing the first target matter to electromagnetic radiation input energy for producing a first isotope shift in the first target matter and neutrons resulting from the first isotope shift, and

capturing the neutrons by a second target matter for producing a second isotope shift in the second target matter and electromagnetic radiation output energy.

18. An apparatus for power generation comprising:

a source unit for producing electromagnetic radiation input energy, wherein the source unit comprises an induction coil arrangement (120),

a first target matter (210), and

~~a second target matter (220),~~

~~wherein the source unit is arranged to expose the first target matter to the electromagnetic radiation input energy for bringing the first target matter via wave resonance into a higher energy state, for producing a first isotope shift in the first target matter and neutrons resulting from the first isotope shift, and for capturing the neutrons by the second target matter for producing a second isotope shift in the second target matter and electromagnetic radiation output energy.~~