The invention claimed is:

1. A method for producing synthesis gas from biomass by pyrolysis, comprising:

1) pre-processing a biomass raw material; wherein the pre-processing of the biomass raw material comprises: crushing the biomass raw material to have particle sizes of 1-6 mm, and drying the raw material till water content is 10-20 wt. %;

2) pyrolyzing the biomass raw material using fast biomass pyrolysis technology, a product of a pyrolysis bed being a pyrolysis gas and a carbon powder;

3) separating the pyrolysis gas from the carbon powder and a solid heat carrier using a cyclone separator;

4) separating the carbon powder away from the solid heat carrier via a solid-solid separator, feeding the carbon powder to a carbon powder stock bin for collection, heating the solid heat carrier in a carrier heating fluidized bed and conveying the solid heat carrier to the pyrolysis bed for recycling use;

5) conveying the generated pyrolysis gas to a condensate tank for spray condensation, condensing a condensable part in the pyrolysis gas to generate biological fuel oil, pressurizing the generated biological fuel oil by a high pressure oil pump and feeding to a gasification furnace to be gasified; and

6) feeding one part of non-condensable pyrolysis gas to a combustion bed to combust with air, conveying the other part of the non-condensable pyrolysis gas to the pyrolysis bed as a fluidizing medium; wherein a ratio of the non-condensable pyrolysis gas to air and the temperature of the carrier

heating fluidized bed are controlled to make sure that the temperature of the pyrolysis bed is 400-600°C, and a residence time of gas phase in the pyrolysis bed is 0.5-5 s.

2. The method of claim 1, wherein the spray condensation adopts external circulating method, the biological fuel oil at the bottom of the condensate tank is pressurized and pumped by the high pressure oil pump, and then the biological fuel oil is returned to the condensate tank for spray condensation after being cooled by an external biological fuel oil heat exchanger; the condensable pyrolysis gas is condensed to generate biological fuel oil, one part of the biological fuel oil is fed to the biological fuel oil tank, and the other part is pressurized by an oil circulating pump and cooled by the biological fuel oil heat exchanger to circularly spray the pyrolysis gas.

3. The method of claim 1 or 2, wherein waste heat smoke generated in the carrier heating fluidized bed in step 4) is used to dry the biomass raw material in step 1) for pre-processing the biomass raw material.

~~4. The method of claim 1 or 2, wherein a ratio of the non-condensable pyrolysis gas to air and the temperature of the carrier heating fluidized bed in step 6) are controlled to make sure that the temperature of the pyrolysis bed is 400-600°C, and a residence time of gas phase in the pyrolysis bed is 0.5-5 s.~~

~~5. The method of claim 1 or 2, wherein the pre-processing of the biomass raw material in step 1) comprises: crushing the biomass raw material to have particle sizes of1-6 mm, and drying the raw material till water content is 10-20 wt. %.~~

~~6.~~4. A gasification system for producing synthetic gas from biomass by pyrolysis using the method of any of claims 1-~~5~~3, comprising a biomass material pre-processing part, a pyrolysis part, a condensing part, and a gasification part; wherein

the pyrolysis part comprises the pyrolysis bed (5) and a combustion bed (9-1);

the condensate tank (12) of the condensing part is connected with a non-condensable pyrolysis gas compressor (15) via a pipeline;

wherein an output of the non-condensable pyrolysis gas compressor (15) is connected with the pyrolysis bed (5) and the combustion bed (9-1); and

wherein the non-condensable pyrolysis gas is used as a fuel of the combustion bed (9-1) and a fluidizing medium of the pyrolysis bed (5).

~~7.~~5. The gasification system of claim ~~6~~4, wherein the condensing part adopts a spray condensation in external circulation, a lower part of the condensate tank (12) is connected with an oil circulating pump (13) via a pipeline, the oil circulating pump (13) is connected with an external biological fuel oil heat exchanger (14); one part of the biological fuel oil is pressurized by the oil circulating pump (13) and cooled by the biological fuel oil heat exchanger (14), so as to circularly spray the pyrolysis gas, and a lower part of the condensate tank (12) is connected with a biological fuel oil tank (16).

~~8.~~6. The gasification system of claim ~~6~~ 4 or ~~7~~5, wherein the pyrolysis bed (5) is connected with the cyclone separator (6) and the solid-solid separator (7), the solid-solid separator (7) is connected with the carbon powder stock bin (8) and the carrier heating fluidized bed (9-2), a lower part of the carrier heating fluidized bed (9-2) is provided with a pipeline connected with the pyrolysis bed (5), so as to convey the heated solid carrier to the pyrolysis bed (5) for recycling

use.

~~9.~~7. The gasification system of claim ~~8~~6, wherein a top part of the carrier heating fluidized bed (9-2) is connected with a drying system (3) of the biomass material pre-processing part through a waste heat and smoke pipeline (11), and an upper part of the combustion bed (9-1) is connected with an air intake pipeline (10).

~~10.~~8. The gasification system of claim ~~7~~5, wherein an pipeline connecting an outlet of the biological fuel oil tank (16) and the gasification furnace (20) is provided with the high pressure oil pump (17), and the biological fuel oil is pressurized and conveyed to the gasification furnace (20) for gasification.