

What is claimed is:

1. A plasma generating system, comprising:
 - a waveguide for transmitting a microwave energy therethrough;
 - a plasma chamber coupled to the waveguide and configured to generate a plasma therein using the microwave energy;
 - a flow inlet for introducing an input gas into the plasma chamber;
 - an exhaust gas pipe for carrying an exhaust gas from the plasma chamber to a manifold coupled to the exhaust pipe, wherein the plasma converts the input gas into the exhaust gas; and
 - a stationary pressure control device installed in the exhaust gas pipe and configured to control a pressure of the exhaust gas in the exhaust gas pipe, the installation of the stationary pressure control device in the exhaust gas pipe to suppress crosstalk between the plasma chamber and at least one other plasma chamber coupled to the manifold.
2. A plasma generating system as recited in claim 1, wherein the pressure control device is a disk having at least one orifice formed therein.
3. A plasma generating system as recited in claim 1, wherein the pressure control device is a sphere having at least one hole through which the exhaust gas passes.
4. A plasma generating system as recited in claim 1, wherein the pressure control device includes a mesh fabric.
5. A plasma generating system as recited in claim 1, wherein the pressure control device is a disk having one or more edge cutouts.
6. A plasma generating system as recited in claim 1, wherein the pressure control device is a tube and a diameter of the tube varies along a downstream direction of the tube.
7. A plasma generating system as recited in ~~claim~~ any one of claims 1 to 6, wherein the pressure control device includes a feedback control unit and comprises:

_a sensor for measuring a pressure of the exhaust gas in the exhaust gas pipe;
 _a valve for adjusting the pressure of the exhaust gas in the exhaust gas pipe;
 and
 _a control unit for receiving a signal associated with the pressure and controlling the valve in response to the signal.

8. A plasma generating system, comprising:

a plurality of plasma reactors, each of the plurality of plasma reactors including:
 a waveguide for transmitting a microwave energy therethrough;
 a plasma chamber coupled to the waveguide and configured to generate a plasma therein using the microwave energy;
 a flow inlet for introducing ~~an input~~ a gas into the plasma chamber;
 _an exhaust gas pipe for carrying an exhaust gas from the plasma chamber, wherein the plasma converts the ~~input~~ gas into the exhaust gas; and
~~a container attached to a side surface of the exhaust gas pipe and in fluid communication with the exhaust gas pipe.~~

~~9. A plasma generating system, comprising:~~

~~a plurality of plasma reactors, each of the plurality of~~  ~~plasma reactors including:~~
~~a waveguide for transmitting a microwave energy therethrough;~~
~~a plasma chamber coupled to the waveguide and configured to generate a plasma therein using the microwave energy;~~
~~a flow inlet for introducing a gas into the plasma chamber;~~
~~an exhaust gas pipe for carrying an exhaust gas from the plasma chamber, wherein the plasma converts the gas into the exhaust gas; and~~
 a pressure control device installed in the exhaust gas pipe and configured to control a pressure of the exhaust gas in the exhaust gas pipe; and
 a manifold coupled to the exhaust gas pipes of the plurality of plasma reactors and configured to receive the exhaust gas from the exhaust gas pipes.

wherein a first plasma reactor of the plurality of plasma reactors having a first stationary pressure control device, the presence of the first stationary pressure control device at the first plasma reactor to reduce crosstalk between the first plasma reactor and at least one other plasma reactor of the plurality of plasma reactors.

9. ~~10.~~ A plasma generating system as recited in claim 98, wherein the pressure control device is a disk having at least one orifice formed therein.

10. ~~11.~~ A plasma generating system as recited in claim 98, wherein the pressure control device is a sphere having at least one hole through which the exhaust gas passes.

11. ~~12.~~ A plasma generating system as recited in claim 98, wherein the pressure control device includes a mesh fabric.

12. ~~13.~~ A plasma generating system as recited in claim 98, wherein the pressure control device is a disk having one or more edge cutouts.

13. ~~14.~~ A plasma generating system as recited in claim 98, wherein the pressure control device is a tube and a diameter of the tube varies along a downstream direction of the tube.

14. ~~15.~~ A plasma generating system as recited in ~~claim 9~~ any one of claims 8 to 13, wherein the pressure control device includes a feedback control unit and comprises:
a sensor for measuring a pressure of the exhaust gas in the exhaust gas pipe;
a valve for adjusting the pressure of the exhaust gas in the exhaust gas pipe; and
a control unit for receiving a signal associated with the pressure and controlling the valve in response to the signal.

15. ~~The~~ ~~16.~~ A plasma generating system as recited in any one of claims 1 to 7, wherein the flow inlet for introducing the input gas includes a forward flow inlet.

16. ~~The~~ The plasma generating system as recited in claim 15, further comprising: a second flow inlet configured as a reverse flow inlet.

a plurality of 17. The plasma reactors, each of generating system as recited in any one of claims 1 to 7 and claims 15 to 16, the plurality of plasma reactors including:

a waveguide for transmitting a microwave energy therethrough;

a input gas to experience a vortex flow within the plasma chamber coupled to the waveguide and configured to generate a

18. The plasma therein using the microwave energy;

a generating system as recited in any one of claims 8 to 14, wherein the flow inlet for introducing a the gas into the plasma chamber; includes a forward flow inlet.

an exhaust 19. The plasma generating system as recited in claim 18, further comprising a second flow inlet configured as a reverse flow inlet.

20. The plasma generating system as recited in any one of claims 8 to 14, the gas pipe for carrying an exhaust gas from to experience a vortex flow within the plasma chamber, wherein the plasma converts the gas into the exhaust gas; and

a container attached to a side surface of the exhaust gas pipe and in fluid communication with the exhaust gas pipe; and

a manifold coupled to the exhaust gas pipes of the plurality of plasma reactors and configured to receive the exhaust gas from the exhaust gas pipes.