CLAIMS

1. A device for injecting ions into a stream of air, comprising:

a housing;

an electric circuit inside the housing and having a piezo transformer;

an electrically conductive element coupled to the electric circuit for emitting ions, at least a portion of the conductive element being exposable to at least a portion of the stream of air for injecting the ions into the stream of air; and

a heater element disposed inside the housing near the piezo transformer in the electric circuit and thermally coupled to the piezo transformer to control the temperature of the piezo transformer.

2. The device of claim 1, further comprising a temperature sensor disposed inside the housing and configured for sensing a temperature at or near the piezo transformer.

3. The device of claim 2, comprising a feedback circuit for controlling the heater element responsive to the temperature sensed by the temperature sensor.

4. The device of any one of the preceding claims, wherein the housing is configured to define a channel for the stream of air.

5. The device of claim 4, wherein the housing is substantially ring-shaped, wherein the channel is provided by a hollow center portion of the substantially ring-shaped housing.

6. The device of claim 4, wherein the piezo transformer is disposed inside a chamber of the housing adjacent the channel for injecting the ions into the stream of air.

7. The device of claim 6, wherein the chamber comprises an opening for exposure of the portion of the piezo transformer to the portion of the stream of air.

8. The device of claim 1, further comprising a coupling element for coupling the device to an airflow device for generating the stream of air.

9. The device of claim 8, wherein the coupling element is configured for adjustably coupling the device to the airflow device.

10. The device of claim 1, wherein the piezo transformer is coupled to the electric circuit for emitting negative ions.

11. The device of claim 1, wherein the housing is configured to be thermally insulating, such as by choice of one or more of material(s), coating and/or lining layer(s).

12. The device of claim 1, wherein the heater element is disposed in a stacked arrangement with the piezo transformer.

13. A method of injecting ions into a stream of air, comprising:

providing a housing;

providing an electric circuit with a piezo transformer inside the housing;

providing an electrically conductive element coupled to the electric circuit for emitting ions, at least a portion of the conductive element being exposable to at least a portion of the stream of air for injecting the ions into the stream of air; and

disposing a heater element inside the housing near the piezo transformer in the electric circuit and thermally coupled to the piezo transformer to control the temperature of the piezo transformer.

14. The method of claim 13, further comprising disposing a temperature sensor inside the housing, the temperature sensor being configuring for sensing a temperature at or near the piezo transformer.

15. The method of claim 14, comprising providing a feedback circuit for controlling the heater element responsive to the temperature sensed by the temperature sensor.

16. The method of claim 13, wherein the housing is configured to define a channel for the stream of air.

17. The method of claim 16, wherein the housing is substantially ring-shaped, wherein the channel is provided by a hollow center portion of the substantially ring-shaped housing.

18. The method of claim 16, comprising disposing the piezo transformer inside a chamber of the housing adjacent the channel for injecting the ions into the stream of air.

19. The method of claim 18, wherein the chamber comprises an opening for exposure of the piezo transformer to the portion of the stream of air.

20. The method of claim 13, comprising disposing the heating element in a stacked arrangement with the piezo transformer.

21. The method of claim 13, further comprising coupling the housing to an airflow device for generating the stream of air.

22. The method of claim 21, wherein the housing is adjustably coupled to the airflow device.

23. The method of claim 13, comprising coupling the piezo transformer to the electric circuit for emitting negative ions.

24. The method of claim 13, wherein the housing is configured to be thermally insulating, such as by choice of one or more of material(s), coating and/or lining layer(s).