CLAIMS

1. An atmospheric pressure ionisation source comprising:

an ionisation chamber, comprising an aperture for receiving at least the distal end of a capillary into the ionisation chamber in use, the aperture having a capillary axis;

a desolvation heater having a nozzle, for directing a stream of heated gas onto the distal end of the capillary in use, the nozzle having a nozzle axis;

a corona discharge device including a corona pin having a corona axis, the corona pin for ionizing a sample in the ionisation chamber in use; and

an inlet cone of a mass spectrometer arranged in the ionisation chamber, the inlet cone defining a cone entrance having a cone axis,

wherein the cone axis is substantially coaxial with the corona axis, the capillary axis is substantially perpendicular to and intersects with the nozzle axis and the corona axis is substantially perpendicular to and intersects the nozzle axis.

2. An atmospheric pressure ionisation source according to claim 1, wherein the distance between the cone entrance and the capillary axis is within a range of 90 to 110% of the distance between the capillary axis and the corona pin tip.

3. An atmospheric pressure ionisation source according to claim 2, wherein the distance between the cone entrance and the capillary axis is substantially 2.9mm and the distance between the capillary axis and the corona pin tip is 2.8mm.

4. An atmospheric pressure ionisation source according to any preceding claim, wherein the distance between the corona axis and the capillary axis is within a range of 50 to 150% of the distance between the capillary axis and the nozzle of the heater.

5. An atmospheric pressure ionisation source according to any preceding claim, wherein the distance between the capillary axis and the nozzle of the heater is between 4.4mm and 6mm.

6. An atmospheric pressure ionisation source according to claim 5, wherein the distance between the capillary axis and the nozzle of the heater is 4.775mm.

7. An atmospheric pressure ionisation source according to any preceding claim, wherein the distance between the corona axis and the nozzle is between 10mm and 11mm.

8. An atmospheric pressure ionisation source according to any preceding claim, wherein the distance between the cone entrance and the tip of the corona pin is in the range of 5.5mm to 7.5mm.

9. An atmospheric pressure ionisation source according to claim 8, wherein the distance between the cone entrance and the tip of the corona pin is in the range of 5.5mm to 5.9mm.

10. An atmospheric pressure ionisation source according to claim 9, wherein the distance between the cone entrance and the tip of the corona pin is 5.7mm.

11. An atmospheric pressure ionisation source according to any preceding claim, wherein the aperture is configured to receive the capillary such that the distal end of the capillary is disposed to intersect the nozzle axis in use.

12. An atmospheric pressure ionisation source according to claim 11, wherein the aperture is configured to receive the capillary such that the distance between the capillary tip and nozzle axis is 2.25mm.

13. An atmospheric pressure ionisation source according to any preceding claim, wherein the nozzle of the desolvation heater is configured to direct a curtain of heated gas onto the distal end of the capillary, the curtain having a curtain plane.

14. An atmospheric pressure ionisation source according to claim 13, wherein the capillary axis is substantially aligned with the curtain plane.

15. An atmospheric pressure ionisation source according to any of claims 13 and 14, wherein the nozzle comprises a plurality of nozzle apertures arranged linearly, or the nozzle comprises a single elongate aperture.

16. An atmospheric pressure ionisation source according to any of claims 13 to 15, wherein the curtain has a length of 8.5mm and a width of 1.64mm.

17. An atmospheric pressure ionisation source according to any of claims 13 to 16, wherein the curtain extends by 0.5mm beyond the tip of the capillary.

18. An atmospheric pressure ionisation source according to any preceding claim, wherein the capillary axis is substantially horizontal in use.

19. An atmospheric pressure ionisation source according to any preceding claim, wherein the nozzle axis is substantially vertical in use.

20. An atmospheric pressure ionisation source according to any preceding claim, wherein the corona axis is substantially horizontal in use.

21. An atmospheric pressure ionisation source according to any preceding claim, wherein the cone axis is substantially horizontal in use.

22. An atmospheric pressure ionisation source comprising:

an ionisation chamber, comprising an aperture for receiving at least the distal end of a capillary into the ionisation chamber in use, the aperture having a capillary axis;

a desolvation heater having a nozzle, for directing a stream of heated gas onto the distal end of the capillary in use, the nozzle having a nozzle axis;

a corona discharge device including a corona pin having a corona axis, the corona pin for ionizing a sample in the ionisation chamber in use; and

an inlet cone of a mass spectrometer arranged in the ionisation chamber, the inlet cone defining a cone entrance having a cone axis,

wherein the cone axis is substantially coaxial with the corona axis, the capillary axis is substantially perpendicular to and intersects with the nozzle axis, the distance between the cone entrance and the capillary axis is substantially 2.9mm and the distance between the capillary axis and the corona pin tip is 2.8mm, the distance between the capillary axis and the nozzle of the heater is between 4.4mm and 6mm, and the distance between the cone entrance and the tip of the corona pin is 5.7mm.