a thermal insulation being located at an outer circumference of the capillary such that heat transfer from the heatable gas flowing proximate the capillary to the liquid in the capillary is impeded;

a tubular structure containing a stagnant gas, the tubular structure being inter-posed between the thermal insulation and the outer circumference of the capillary; and

a heat conductor reaching into an inner space of the tubular structure in order to contact the stagnant gas and receive heat therefrom, wherein the heat conductor further extends upstream into a region where a substantially unheated gas is supplied to the conduit so that the substantially unheated gas may contact a portion of the heat conductor directly or indirectly thereby receiving and carrying away heat, which originates from the stagnant gas, upon entering the conduit.

18. The assembly of claim 17, wherein the thermal insulation comprises one of an at least partially evacuated hollow sleeve or jacket, a solid layer of material with high heat resistance, and a combination thereof.

19. The assembly of claim 17, wherein at least portions of the heat conductor have a structured surface to allow for high heat transmission.

20. An assembly for an electrospray ion source, comprising:

a capillary for guiding a flow of liquid which is to be electrosprayed into an ionization chamber;

a tube at least partially encasing the capillary such that a conduit for guiding a gas is created proximate the capillary;

a thermal insulation being located at an outer circumference of the capillary such that heat transfer from the gas flowing proximate the capillary to the liquid in the capillary is impeded; and

a heat conductor thermally contacting at least one of the thermal insulation at a radially inward side and the capillary at a radially outward side in order to

receive heat therefrom, wherein the heat conductor also thermally contacts a conduit portion in a region where a substantially unheated gas is supplied to the conduit so that the substantially unheated gas may receive and carry away heat, which originates from the thermal insulation or the capillary, upon entering the conduit.

a thermal insulation being located at an outer circumference of the capillary such that heat transfer from the heatable gas flowing proximate the capillary to the liquid in the capillary is impeded;

a tubular structure containing a stagnant gas, the tubular structure being inter-posed between the thermal insulation and the outer circumference of the capillary; and

a heat conductor reaching into an inner space of the tubular structure in order to contact the stagnant gas and receive heat therefrom, wherein the heat conductor further extends upstream into a region where a substantially unheated gas is supplied to the conduit so that the substantially unheated gas may contact a portion of the heat conductor directly or indirectly thereby receiving and carrying away heat, which originates from the stagnant gas, upon entering the conduit.

18. The assembly of claim 17, wherein the thermal insulation comprises one of an at least partially evacuated hollow sleeve or jacket, a solid layer of material with high heat resistance, and a combination thereof.

19. The assembly of claim 17, wherein at least portions of the heat conductor have a structured surface to allow for high heat transmission.

20. An assembly for an electrospray ion source, comprising:

a capillary for guiding a flow of liquid which is to be electrosprayed into an ionization chamber;

a tube at least partially encasing the capillary such that a conduit for guiding a gas is created proximate the capillary;

a thermal insulation being located at an outer circumference of the capillary such that heat transfer from the gas flowing proximate the capillary to the liquid in the capillary is impeded; and

a heat conductor thermally contacting at least one of the thermal insulation at a radially inward side and the capillary at a radially outward side in order to

receive heat therefrom, wherein the heat conductor also thermally contacts a conduit portion in a region where a substantially unheated gas is supplied to the conduit so that the substantially unheated gas may receive and carry away heat, which originates from the thermal insulation or the capillary, upon entering the conduit.