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thermal path—it could also be fabricated of subassemblies glued or otherwise attached to one another as would be readily appreciated by those of ordinary skill in the art). The device would be supported after the outermost cut and the sample stage lie within the innermost. N sections would give a thermal path of approximately $N*L$, thus greatly increasing the thermal isolation of heater **40**. Furthermore, this type of approach would tend to produce a more even temperature gradient across the entire heater/insulator/support assembly.

An alternative embodiment of the invention in accordance with the discussion above is shown in FIG. 6. In this embodiment a total of three generally torroidally-shaped voids or air gaps **80**, **82**, **84** have been incorporated into the thermally insulating support element **48** at increasing radii from the center line **86** of thermally insulating support element **48** as shown. In this way, if the vertical thickness of element **48** is L, the thermal path from heater **40** to support sheet **73** is at least about 4 L (more, actually, if the radial distance travelled by the heat is taken into account). Thus, these simple structures provide a much improved mechanism for delivering stable heat to a sample under study.

Although illustrative presently preferred embodiments and applications of this invention are shown and described herein, many variations and modifications are possible which remain within the concept, scope, and spirit of the invention, and these variations would become clear to those of skill in the art after perusal of this application. The invention, therefore, is not to be limited except in the spirit of the appended claims.

What is claimed is:

1. A scanning probe microscope including a heated stage, said heated stage comprising:

a support substrate having an upper surface and a lower surface, said upper surface adapted for supporting a sample under investigation by the scanning probe microscope;

an electrically powered heating element thermally coupled to at least a portion of said lower surface of said support substrate;

a thermally insulating support element engaged with said lower surface of said support substrate, said support element having a vertical thickness of L, said support element attached to the microscope at a plurality of peripheral points;

at least one generally torroidally-shaped void in said support element disposed so as to increase the distance within said support element between said heating element and said peripheral points to at least about 2 L or greater.

2. A scanning probe microscope according to claim **1** wherein said support substrate comprises copper.

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3. A scanning probe microscope according to claim **1** wherein said support sheet comprises steel.

4. A removable heated stage for a scanning probe microscope, said stage comprising:

a support sheet of a material attracted by magnets adapted to be supported by magnets extending downwardly to engage an upper surface of said support sheet, said support sheet having an aperture therein;

a thermally insulating block coupled to a lower surface of said support sheet, said thermally insulating block having a generally torroidally-shaped air gap therein, said torroidally-shaped air gap having a center along a vertical axis of said air gap;

a support substrate accessible through said support sheet through said aperture and having an upper surface and a lower surface, said upper surface adapted for supporting a sample under investigation by the scanning probe microscope; and

an electrically powered heating element thermally coupled to at least a portion of said lower surface of said support substrate and supported by a portion of said thermally insulating block over said center.

5. A removable heated stage according to claim **4** wherein said support substrate comprises copper.

6. A removable heated stage according to claim **4** wherein said support sheet comprises steel.

7. A removable heated stage for a scanning probe microscope, said stage comprising:

a support sheet of a material attracted by magnets adapted to be supported by magnets extending downwardly to engage an upper surface of said support sheet, said support sheet having an aperture therein;

a thermally insulating block coupled to a lower surface of said support sheet, said thermally insulating block having a generally torroidally-shaped air gap therein, said torroidally-shaped air gap having a center along a vertical axis of said air gap;

a support substrate accessible through said aperture in said support sheet and having an upper surface and a lower surface, said upper surface adapted for supporting a sample under investigation by the scanning probe microscope; and

an electrically powered heating element thermally coupled to at least a portion of said lower surface of said support substrate and supported by a portion of said thermally insulating block over said center.

8. A removable heated stage according to claim **7** wherein said support substrate comprises copper.

9. A removable heated stage according to claim **7** wherein said support sheet comprises steel.

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