CLAIMS

1. A gas chromatography system comprising:

a first heating device configured to thermally couple to a first section of a chromatography column in a first position of the first heating device and to thermally couple to an exit a second section of a gas chromatography column in a second position of the first heating device, wherein the first heating device is configured to move longitudinally from the first position of the first heating device to the second position of the first heating device during a gas chromatographic separation; and

a second heating device, separate from the first heating device, wherein the second heating device is configured to thermally couple to a first section of the gas chromatography column in a first position of the second heating device and to thermally couple to a second section of the gas chromatography column in a second position of the second heating device, wherein the second heating device is configured to move longitudinally from the first position of the second heating device to the second position of the second heating device during the chromatographic separation.

2. The gas chromatography system of claim 1, further comprising a respective motor coupled to each of the first heating device and the second heating device, wherein the motor coupled to the first heating device is configured to move the first heating device from the first position of the first heating device to the second position of the first heating device and wherein the motor coupled to the second heating device is configured to move the second heating device from the first position of the second heating device to the second position of the second heating device, wherein the first heating device and the second heating device are configured to provide a thermal gradient to the gas chromatography column during the gas chromatographic separation.

3. The gas chromatography system of claim 2, wherein the second heating device is configured to contact the chromatography column at the second position of the second heating device.

4. The gas chromatography system of claim 1, wherein each of the first heating device and the second heating device is configured to thermally couple to inner coil surfaces of a different

section of the gas chromatography column when the first heating device is in the second position of the first heating device and when the second heating device is in the second position of the second heating device.

5. The gas chromatography system of claim 2, further comprising a processor.

6. The system of claim 5, wherein each respective motor is electrically coupled to the processor and is configured as a stepper motor.

7. The gas chromatography system of claim 5, wherein each of the first heating device and the second heating device is independently arranged to be inserted into and out of an interior portion of a coiled chromatography column.

8. The gas chromatography system of claim 7, wherein each of the first heating device and the second heating device is configured as a cylinder or rod configured to move into and out of the interior portion of the coiled chromatography column.

9. The gas chromatography system of claim 8, further comprising a DC power source electrically coupled to the processor and the respective stepper motors.

10. The gas chromatography system of claim 5, wherein a first temperature of the first heating device is selected to permit equilibration of the gas chromatography column at a temperature substantially the same as the first temperature when the first heating device is inserted into an interior portion of the gas chromatography column, wherein the processor is configured to move the inserted, first heating device out of the interior portion of the gas chromatography column prior to movement of the second heating device, and wherein after the inserted, first heating device is moved out of the interior portion of the gas chromatography column the second heating device is inserted longitudinally into the interior portion of the gas chromatography column to provide a thermal gradient to the chromatography column.

11. The gas chromatography system of claim 10, wherein the gas chromatography column is wound around a substrate sized and arranged to receive each of the first heating device and the second heating device within an interior portion of the substrate.

12. The gas chromatography system of claim 1, wherein the first heating device is further configured to cool the gas chromatography column.

13. The gas chromatography system of claim 12, further comprising a cooling device thermally coupled to the first heating device and the gas chromatography column, the cooling device configured to assist in providing the thermal gradient to the gas chromatography column.

14. The gas chromatography system of claim 13, in which the cooling device is configured as one or more of a fan, a Peltier cooler, and a heatsink.

15. The gas chromatography system of claim 1, wherein the second heating device is configured to move longitudinally into and out of an interior of the first heating device.

16. The gas chromatography system of claim 1, further comprising a detector configured to fluidically couple to the gas chromatography column.

17. The gas chromatography system of claim 1, in which the first heating device is configured as a cylinder configured to move through an interior space formed by coiling of the gas chromatography column.

18. The gas chromatography system of claim 17, in which the diameter of the cylinder is sized and arranged to receive and contact interior surfaces of the gas chromatography column to provide a thermal gradient to the gas chromatography column.

19. The gas chromatography system of claim 17, in which the first heating device is configured to thermally couple to two or more gas chromatography columns during the chromatographic separation to provide a temperature gradient to each of the two or more gas chromatography columns.

20. The gas chromatography system of claim 1, wherein the first heating device and the second heating device are together configured to provide a non-linear thermal gradient to the gas chromatography column.