the stage assembly. The gas curtain substantially prevents reactive gas in the ambient environment from entering the microchamber when the stage assembly moves relative to the top member.

[0007] An aspect of the disclosure is a microchamber system for processing a substrate without exposure to a reactive gas from an ambient environment. The system has a top member having at least one light-access feature. The system also has a stage assembly supporting the substrate. The stage assembly is disposed relative to the top member to define a microchamber and a peripheral microchamber gap. The stage assembly has an outer periphery and is movable relative to the top member. The microchamber contains a gas having either a select amount of the reactive gas or no substantial amount of the reactive gas. The system has at least one gas supply system that is pneumatically connected to the stage assembly. The ~~at least one gas supply system~~ stage assembly is configured to support the flow of the gas from the at least one gas supply system into the peripheral microchamber gap to form a gas curtain adjacent the outer periphery. The gas curtain substantially prevents the reactive gas of the ambient environment from entering the microchamber when the stage assembly moves relative to the top member.

[0008] Another aspect of the disclosure is the microchamber system as described above, wherein the at least one light-access feature includes at least one of a through opening and a window.

[0009] Another aspect of the disclosure is the microchamber system as described above, wherein the at least one light-access feature is configured to allow at least one laser beam to pass through the top member and on to the substrate.

[0010] Another aspect of the disclosure is the microchamber system as described above, wherein the gas is one selected from the group of gases consisting of: nitrogen, argon, helium and neon.

[0011] Another aspect of the disclosure is the microchamber system as described above, wherein the reactive gas is oxygen.

[0012] Another aspect of the disclosure is the microchamber system as described above, wherein the at least one gas supply system supplies the gas to the microchamber.