

WHAT IS CLAIMED IS

1. A nanoimprint lithography system for imprinting a partial field of a substrate, the system comprising:
 - a template chuck configured to retain an imprint lithography template, the template chuck having a central axis oriented normal to the template chuck and passing through the center of the template when retained thereon; and
 - a plurality of actuators positioned in proximity to the template chuck and at locations spaced apart from the central axis, each of said actuators capable of providing a force to the retained template to deflect portions of the retained template away from the template chuck;
 - a controller configured to actuate the actuators in a manner to asymmetrically deflect a portion of the retained template away from the template chuck such that the maximum deflection of the template occurs at a location spaced apart from the central axis; and
 - a substrate chuck configured to position a substrate having a partial field with polymerizable material deposited thereon at a location such that the initial point of contact between the template and the polymerizable material is at the spaced apart location.
2. The nanoimprint lithography system of claim 1 wherein the retained template further includes an imprint field and wherein the actuators are further positioned so as to be disposed outside of the imprint field.
3. The nanoimprint system of claim 1 wherein the controller is further configured to control the magnitude of force applied by each actuator based on the coordinates and dimensions of a given partial field to be imprinted on a substrate.
4. The nanoimprint system of claim 1 wherein the controller is further configured to control the magnitude of force applied by each actuator based on the material and thickness of the retained template.

5. The nanoimprint lithography system of claim 1 wherein the template chuck is rotatable about an axis parallel to the retained template and normal to the central axis, thereby allowing the template chuck and the template retained thereon to tilt relative to a substrate disposed in superimposition with the template chuck and retained template.
6. The nanoimprint lithography system of any one of claims 1 through 5 wherein the actuators comprise pneumatic ports or slits that provide pressurized air or gas as the actuating force.
7. The nanoimprint lithography system of any one of claims 1 through 5 wherein the actuators are piezo actuators.
8. A method for imprinting a partial field of a substrate, the method comprising:
 - providing an imprint lithography template having a center, the center defining a central axis passing through the center in a direction normal to the template;
 - positioning the imprint lithography template such that a portion of the imprint lithography template is in superimposition with a partial field on the substrate;
 - depositing polymerizable material on the partial field of the substrate;
 - altering the shape of the template such that a portion of the template bows asymmetrically toward the partial field of the substrate and where the maximum deflection of the bowed portion occurs at a location spaced apart from the center axis;
 - contacting the deposited polymerizable material with the template, wherein the initial point of contact between the template and polymerizable material is at a location spaced apart from the center axis; and
 - solidifying the polymerizable material to form a partial field imprint on the substrate.

9. The method of claim 8 further comprising the step of tilting the template relative to the substrate.
10. A method for imprinting a partial field of a substrate, the method comprising:
providing an imprint lithography template having a center, the center defining a central axis passing through the center in a direction normal to the template;
positioning the imprint lithography template such that a portion of the imprint lithography template is in superimposition with a partial field on the substrate;
depositing polymerizable material on the partial field of the substrate;
altering the shape of the template such that a portion of the template bows concavely;
initially contacting the deposited polymerizable material with the template at one or more locations spaced apart from the central axis of the template; and
solidifying the polymerizable material to form a partial field imprint on the substrate.
11. The method of claim 10 wherein the altering shape step further comprises applying back pressure to the template.
12. The method of claim 10 or claim 11 further comprising the step of tilting the template relative to the substrate.