CLAIMS

1. A substrate holder for use in a lithographic apparatus and configured to support a substrate, the substrate holder comprising:

a main body having a first surface and a second surface opposite to the first surface;

a plurality of burls projecting from the first surface and each having a distal end surface which substantially conforms to a support plane and is configured for supporting the substrate;

a plurality of further burls projecting from the second surface and each having a distal end surface which substantially conforms to a plane so as to support the substrate holder on a substrate support;

and a first edge seal projecting from the first surface and extending around the plurality of burls so as to restrict gas flow when a substrate is held by the substrate holder;

wherein the plurality of burls comprises a first group of burls and a second group of burls, the second group of burls surrounding the first group of burls, the diameter of the burls is in the range of about 210 μm to about 270 μm; wherein the second group of burls has a cross-sectional area in a plane parallel to the support plane that is larger than the cross-section of the first group of burls.

2. The substrate holder according to claim 1, wherein the second group of burls has a different size from that of the first group of burls.

3. The substrate holder according to claim 1 or 2, wherein the second group of burls is formed using different materials from the first group burls.

4. The substrate holder according to any of claims 1-3, wherein the burls are integral with the main body and of a different material from the main body.

5. The substrate holder according to any of claims 1-4, wherein the main body and the burls are formed of SiSiC.

6. The substrate holder according to any of claims 1-5, wherein the first edge seal has a

height lightly shorter than that of the burls.

7. The substrate holder according to any of claims 1-6, further comprising a second edge seal projecting from the second surface and extending around the plurality of further burls.

8. The substrate holder according to any of claims 1-7, wherein the substrate holder is provided with a heater, and/or a sensor, and/or electrodes to form an electrostatic clamp.

9. The substrate holder according to any of claims 1-8, wherein one or more coatings are applied to all or parts of the burls.

10. The substrate holder according to claim 9, wherein the coating comprises a layer of diamond-like carbon (DLC) or diamond.

11. The substrate holder according to any of claims 1-10, wherein the second group of burls consists of a single outermost ring of burls.

12. The substrate holder according to any of the preceding claims, wherein the burls have a height of 150 μm, and/or the pitch of the burl is in the range of about 0.5 mm to 3 mm.

13. The substrate holder according to any of the preceding claims, wherein the edge seal is provided near the periphery of the substrate holder and/or the substrate holder further comprises a plurality of through-holes formed in the main body.

14. The substrate holder according to any of the preceding claims, wherein the edge seal is a projecting ridge around the outside of substrate holder.

15. The substrate holder according to any of the preceding claims, wherein the stiffness of the burls can be varied by their cross-sectional area, by their shape or by their composition.

16. The substrate holder according to any of the preceding claims, wherein the burls may be frusto-conical in shape, or circular in plan, or can also be formed in other shapes, with side walls that are slightly inclined, and wherein the side walls may be vertical or even

overhanging.

17. The substrate holder according to any of the preceding claims, wherein the density of the second group of burls is greater than the density of the first group of burls.

18. The substrate holder according to claim 1, wherein the total cross-sectional area of the distal ends of the plurality of burls is less than 5% of the surface area of the substrate.

19. A lithographic apparatus for applying a pattern to a substrate, the apparatus comprising the substrate holder according to any of claims 1-18.

20. A method of manufacturing the substrate holder according to any of claims 1-18, wherein the second group of burls is formed using a different technique from the first group burls and/or wherein the burls are formed by additive or subtractive techniques or deposited on the main body.