CLAIMS

1. A module (10) for chemically processing a substrate (20), comprising:
   - an immersion chamber (11),
   - a spray unit (13), and
   - a motion unit (14),

   wherein the immersion chamber (11) is configured to receive a first liquid and the substrate (20), so that the substrate (20) is immersed in the first liquid,

   wherein the spray unit (13) comprises a plurality of spray nozzles (15), which are configured to spray a second liquid (22) within the immersion chamber (11),

   wherein the motion unit (14) is configured to provide a relative motion between the substrate (20) and the spray unit (13), and

   wherein the spray unit (13) extends along the substrate (20) to be processed such that the second liquid (22) is substantially sprayed on the substrate (20) in a thickness direction (X) of the substrate (20),

   characterized in that the spray unit (13) comprises several rows of spray nozzles (15) arranged in the immersion chamber (11) along a height direction (Z) of the immersion chamber (11).

2. Module (10) according to claim 1, further comprising an ultrasonic unit (12) configured to provide ultrasound to agitate the first liquid in the immersion chamber (11).

3. Module (10) according to claim 2, wherein the ultrasound unit (12) is arranged at an outer surface of the immersion chamber (11).

4. Module (10) according to claim 2, wherein the ultrasound unit (12) and the spray unit (13) are at least partially arranged at a removable plate element configured to be moved relative to the immersion chamber (11).

5. Module (10) according to one of the preceding claims, further comprising an exhaust unit (25) comprising preferably an upper exhaust arranged above the first liquid and a bottom exhaust arranged at the bottom of the immersion chamber (11).

6. Module (10) according to one of the preceding claims, wherein the motion unit (14) is configured to move the substrate (20) relative to the immersion chamber (11) in a first direction (Z) in and out of the immersion chamber (11).

7. Module (10) according to the preceding claim, wherein the motion unit (14) is configured to move the substrate (20) relative to the immersion chamber (11) in another direction (X,Y) perpendicular to the first direction (Z).

8. Module (10) according to one of the preceding claims, wherein the spray nozzles (15) are at least partially arranged in a wall of the immersion chamber (11).

9. Module (10) according to one of the preceding claims, wherein the spray nozzles (15) are at least partially arranged in spray bars (16).

10. Module (10) according to the preceding claim, wherein the motion unit (14) is configured to move at least some of the spray bars (16) relative to the substrate (20).

11. Module (10) according to claims 2 to 4 and 9 or 10, wherein the ultrasonic unit (12) comprises a plurality of ultrasound transducers, which are arranged between adjacent spray bars (16).

12. Module (10) according to one of the preceding claims, wherein the spray unit (13) is configured to spray the second liquid (22) in a spray direction, which is non-perpendicular tilted relative to a wall of the immersion chamber (11) and directed towards a bottom of the immersion chamber (11), preferably in a range of 20° to 70° relative to the wall of the immersion chamber (11).

13. Module (10) according to one of the preceding claims, wherein in a row of adjacent first, second and third spray nozzles (15), the first and third spray nozzles (15) are tilted similar and the second spray nozzle is arranged differently to the first and third spray nozzles (15).

14. Module (10) according to one of the preceding claims, further comprising a chamber cover unit (17) comprising several cover elements (18) configured to close an opening in the immersion chamber (11) in a closed position and to surround a substrate (20) to be transferred through the opening in close contact in a transfer position.

15. Module (10) according to the preceding claim, wherein a gap between the cover elements and a rim of the immersion chamber is controlled by a flow of sealing gas.

16. Module (10) according to one of the claims 14 and 15, wherein the chamber cover unit (17) is further configured to essentially entirely open the opening in an open position.

17. Module (10) according to one of the claims 14 to 16, wherein the chamber cover unit (17) further comprises a processing element configured to control a movement of the chamber cover elements (18) depending on motion data received from the motion unit (14) controlling the relative motion between the substrate (20) and the spray unit (13).

18. Module (10) according to one of the preceding claims, further comprising a valve unit (30) with several valves (31), wherein each valve (31) is connected to a separate tank or drain and wherein the valves (31) are configured for liquid drain and gas exhaust.

19. Module (10) according to one of the preceding claims, further comprising a drain, rinse and dry unit configured to blow and/or to suck liquid and/or gas in and/or out of the immersion chamber (11) and/or the spray unit (13).

20. Module (10) according to the preceding claim, wherein the drain, rinse and dry unit is configured for waterfall-rinsing, waterfall-chemical processing and/or waterfall quenching.

21. Module (10) according to claims 19 or 20, wherein the drain, rinse and dry unit comprises a temperature controlling element configured to heat or cool the liquid and/or gas to be blown or sucked through the immersion chamber (11) and/or the spray unit (13).

22. Module (10) according to one of the preceding claims, further comprising a lifting unit configured to lift at least a portion of the immersion chamber (11) to drain liquid out of the spray unit (13).

23. A method for chemically processing a substrate (20), comprising the following steps, not necessarily in this order:
- inserting a first liquid and a substrate (20) into an immersion chamber (11), so that the substrate (20) is immersed in the first liquid,
- removing the first liquid from the immersion chamber (11),
- spraying a second liquid (22) within the immersion chamber (11) on the substrate (20) in a thickness direction (X) of the substrate (20) by means of a spray unit (13) comprising several rows of spray nozzles (15), arranged in the immersion chamber (11) along a height direction (Z) of the immersion chamber (11), and
- relatively moving the substrate (20) and the spray unit (13) by means of a motion unit (14).

24. Method according to the preceding claim, wherein the spraying of the second liquid (22) is done while the substrate (20) is at least partially immersed in the first liquid and before removing the first liquid from the immersion chamber (11).

25. Method according to claim 23 or 24, further comprising the step of removing the substrate (20) out of the immersion chamber (11) while rinsing the immersion chamber (11) for a subsequent processing of the same substrate (20).

26. A use of a module (10) according of one of the claims 1 to 22 for chemically processing a substrate (20) with diagonals or diameters in a range of 300 mm and larger.