

ABSTRACT**Lithographic Apparatus, Device Manufacturing Method, and Device Manufactured Thereby.**

Various novel cleaning processes are disclosed. Previous cleaning processes are global in that they involve infusing oxygen into the whole system and switching on a single radiation source which supplies a cleaning beam of radiation to every optical element in the lithographic apparatus. This can lead to overexposure of some optical elements whilst
5 leaving other optical elements not cleaned to a sufficient amount. This is overcome by providing a system which allows selective ones or groups of the optical elements to be cleaned and which allows a spatially varied cleaning to occur across the surface of an optical element. This can be achieved by only supplying the cleaning beam of radiation to one or some of the optical elements and/or by increasing the local oxygen density in the
10 vicinity of certain optical elements. Spatially resolved cleaning can be achieved using gray filters, which may be dynamically adapted, or by using a steerable electron mean beam.

Fig. 2