1. Title:	Effect of Differential Pressure on Particle Contamination on EUVL Photomasks
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3. Abstract body:

In order to effectively prevent deposition of particles on a photomask in EUVL, the surrounding pressure level has to be maintained above a certain threshold value. In previous investigations, we found that the required pressure level is at least 50 mTorr for thermophoresis and drag force to be effective. The optics zone, however, should be maintained at a pressure level as low as possible (< 5 mTorr) to avoid excessive absorption of the EUV beam. In this paper we present a systematic experimental and numerical study of the effect of such a differential pressure system on particle contamination on the mask. Since the interface between the two regions must remain open to let the beam penetrate, a compensation flow develops between the two pressure regions. It will be presented to which extent this flow can prevent particles from entering the mask zone from the optics zone. The situation was first investigated experimentally at higher pressure levels which were then gradually decreased, using numerical Computational Fluid Dynamics (CFD) simulations. Further the effect of the resulting flow within the mask zone on transport of particles generated within the mask zone will be discussed and whether these particles are swept out before they deposit on the mask.