Advanced Lateral High Aspect Ratio Test Structures for Conformality Characterization by Optical Microscopy

O. Ylivaara[1], P. Hyttinen[1], K. Arts[2], F. Gao[1], W.M.M. Kessels[2], R. L. Puurunen[1,3], M. Utriainen[1]

1) *VTT Technical Research Centre Of Finland Ltd, P.O. Box 1000, FI-02044 VTT, Finland*
2) *Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands*
3) *Aalto University School of Chemical Engineering, Espoo, Finland*

SUPPLEMENTARY MATERIAL

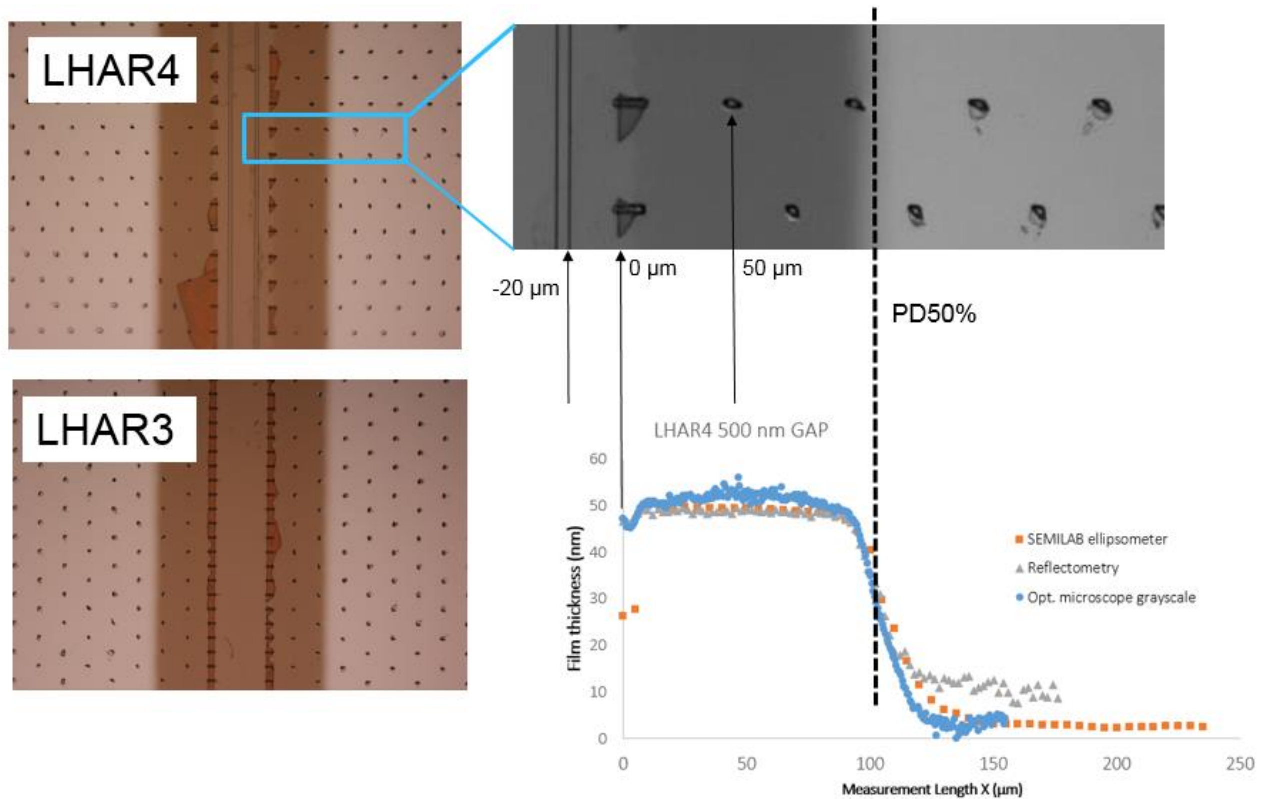

Fig S1. (Left) Microscope images of 50 nm ALD Al2O3 on PillarHall LHAR3 and LHAR4 after removal of the top membrane. LHAR4 has advanced pillar design and internal distance indicator line on the opening area to support optical characterization by imaging and line-scan methods as illustrated in detail in gray-scale image.
(Right) (up) Gray-scale image and (down) corresponding film saturation profile graphs from 3 different sources 1) micro-spot ellipsometer (Semilab), 2) micro-spot reflectometer (FilmTek), 3) calculated graph from the microscope image grayscale data and using reflectometry measured thickness in the opening area to adjust to the actual thickness scale. PD50%= penetration depth 50%.