EUV Absorber / Buffer Etch Variability Investigation

Pavel Nesladek; Olga Filonenko
Advanced Mask Technology Center, Rähnitzer Allee 9; 01109 Dresden, Germany

Abstract

Critical dimension (CD) reduction according to ITRS Roadmap assumes application of EUV lithography for 35 nm technology node and beyond.
Since the EUV mask technology is in contrary to nowadays technology based on reflective optics, new material types and processes take place in the manufacturing process of the EUV mask. Structuring of the absorber and buffer layers by etch processes is key to successful implementation of the EUV technology. The absorber and buffer etch processes were thoroughly investigated at AMTC in order to provide expected performance. The processes differ significantly from the state of the art processes used for manufacturing of the binary and half tone PSM masks also by the variability. We are going to present the variability of the processes to show the huge spectrum of possible results and number of parameters used for the process optimization.