# EUV interference and proximity lithography

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The dual grating approach is a common scheme for EUV interference lithography (IL), which allows reducing the feature size of periodic structures on a mask by a factor of two at wafer. The approach here is to fabricate a dual grating mask, which is suitable for illumination by a tabletop EUV plasma source with limited coherence length. Compared to synchrotron radiation, the radiation of a plasma source is less intense. This is advantageous from the point of view of mask fabrication as a high-efficiency phase-shift mask can be produced without technologically challenging structure transfer steps. The resist itself can act as a phase shifting medium and doesn't degenerate under illumination with low intensity EUV radiation. For fabrication of periodic arrays of µm-size structures, i.e. infrared antennas, EUV IL can be useful for achieving sharp edges and small (nm-scale) structure features. In the proximity lithography, the diffraction by the µm-scale mask structures is in Fresnel regime. We report on the fabrication of a mask for Fresnel assisted proximity lithography, which has been designed by the use of iterative algorithms to find the mask layout, which leads to the desired structures on the wafer.