

Cold Cathode Based Electron Beam(C-beam) for Extreme Ultraviolet and x-ray source applications

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ABSTRACT

Here we present cold cathodes-based electron sources for the EUV (extreme ultraviolet) and x-ray sources. We developed cold cathode electron beam(C-beam) with carbon nanotubes (CNTs) electron emitters and applied as electron sources for semiconductor and display inspection and metrologies application. We developed the EUV light sources with C-beam irradiation techniques and applied for EUV mask pellicle inspection [1]. The EUV light sources shows very stable operation, short-term stability less than 1% and reliable long-time operation. The quality of EUV light sources collimated with MLMs(multi-layer-mirror) and apertures. Also, high performance x-ray sources with C-beam observed and confirm resolution less than 30 μm and possible low voltage and lower dose inspection of secondary ion batteries and microscopy [2]. The resolution and anode current would be controlled by C-beam size and CNT emitters density distribution. Detail of C-beam fabrications, performances of the beam and design of the beam would be presented, The EUV light sources and x-ray sources fabrication and performances would be presented.

References

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