3.5 RAY DIAGRAMS

3.5.1 Illumination System

- TEM mode: Wide area parallel illumination mode. For TEM observation.
- NBD mode: Small convergence angle micro-area illumination mode. For micro-area diffraction mode.
- EDS mode: High probe current micro-area illumination mode. For analysis.
- CBD mode: Wide range changeable convergence angle micro-area illumination mode. For convergent electron beam diffraction.

Illumination Mode	TEM	NBD	EDS	CBD
Low mags. image observation	○	×	×	×
High mags. image observation	○	△	△	△
Selected area difraction	○	△	△	△
Microbeam electron difraction	△	○	△	△
Conversion beam electron difraction	△	○	○	○
EDS analysis	△	○	○	○
EELS analysis	○	○	○	○

○: Suitable, △: Possible but unsuitable, ×: impossible

3.5.1a TEM mode ray diagram

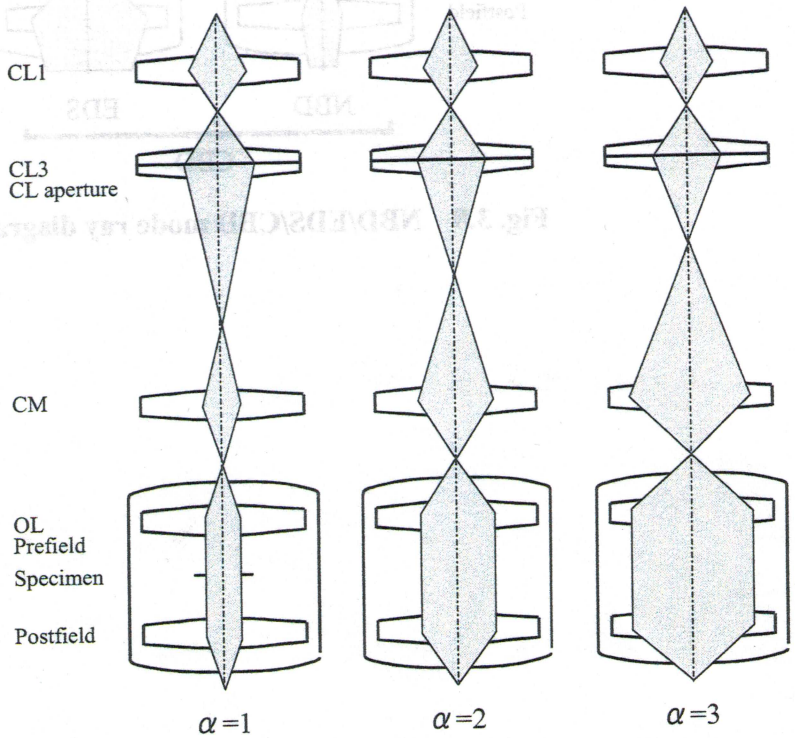

Fig. 3.7 TEM mode ray diagram

The illumination area size at the time of parallel illumination can be changed by changing theαselector.

α=1: Suitable for about 200,000 times or more.

α=2: Suitable for about 50,000 to 200,000 times.

α=3: Suitable for about 50,000 times or less.

3.5.1b NBD/EDS/CBD mode ray diagram

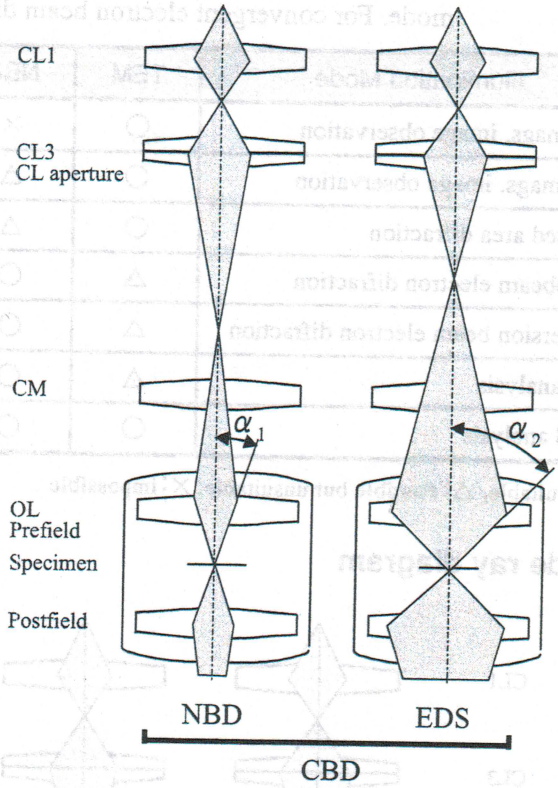

Fig. 3.8 NBD/EDS/CBD mode ray diagram

3.5.2 Imaging System

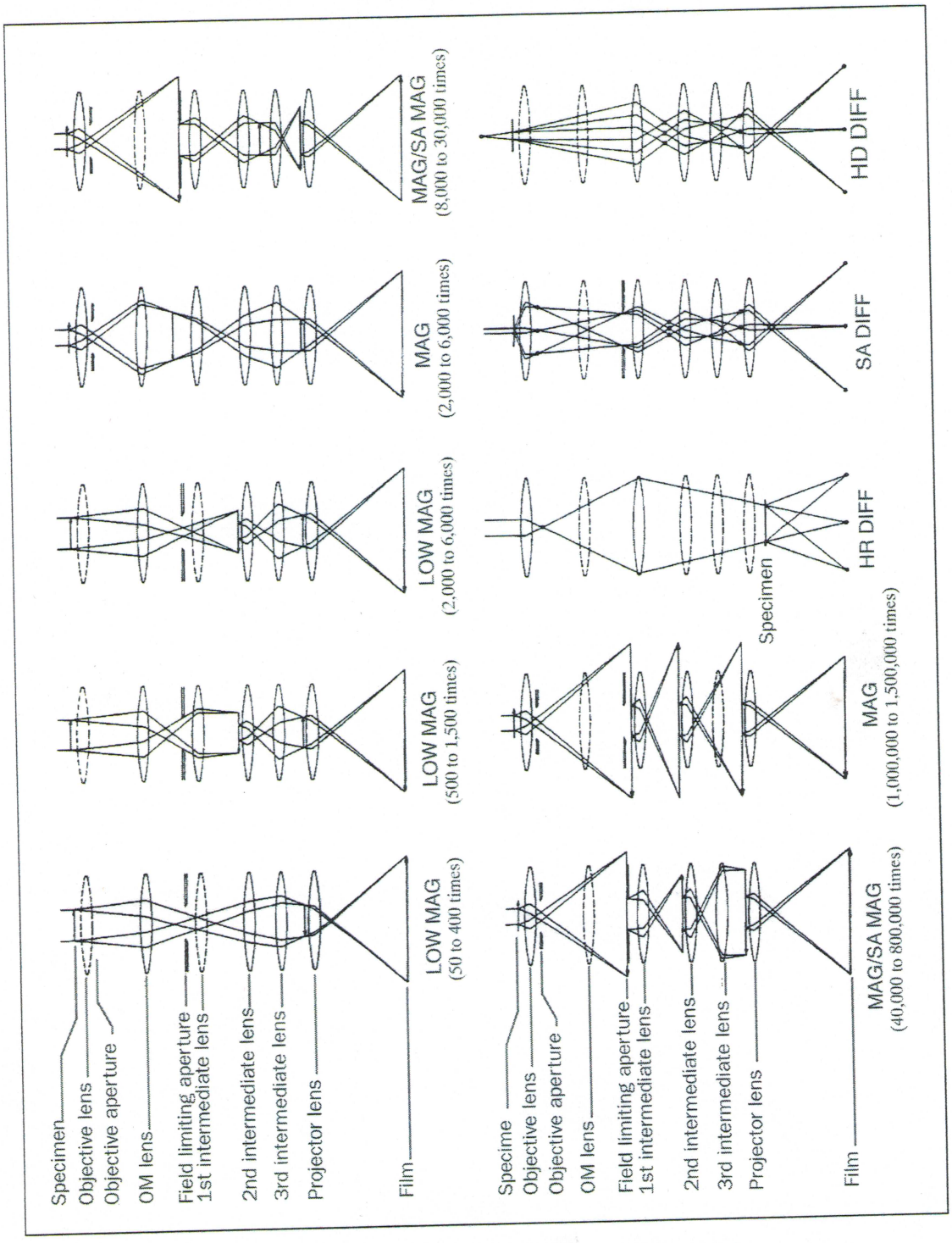

Fig. 3.9 Ray diagrams (imaging system)