

**IV. Exposure System/Optics**

**Contact Printing**

**Proximity Printing**

- Mask in contact with wafer
- **Problem:** mask pattern can become damaged with each exposure → must make a new mask after x number of exposures
- 1X printing very useful for MEMS → can expose surfaces with large topography (where reduction printers cannot)

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**IV. Exposure System/Optics**

**Projection Printing**

- Dominates in IC transistor fabrication
- 5X or 10X reduction typical
- Mask minimum features can be larger than the actual printed features by the focused reduction factor → less expensive mask costs
- Less susceptible to thermal variation (in the mask) than 1X printing
- Can use focusing tricks to improve yield:

Dust particle will be out of focus → better yield!

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