

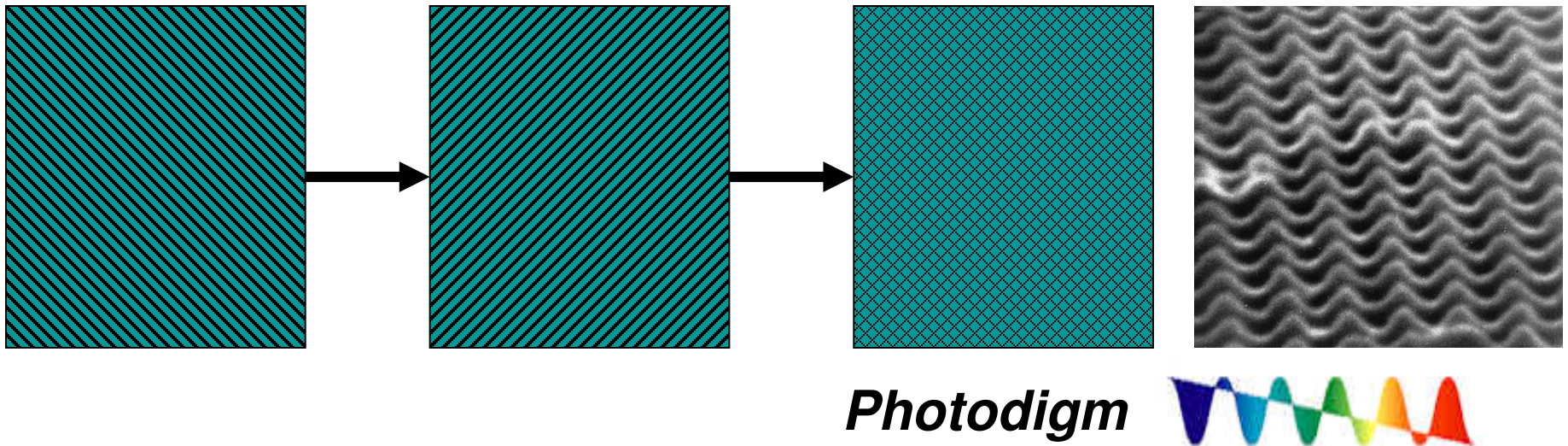
**The mask design for Two-  
Dimensional GSE  
Active Optical Lattice Filter**

**Linglin Jiang**

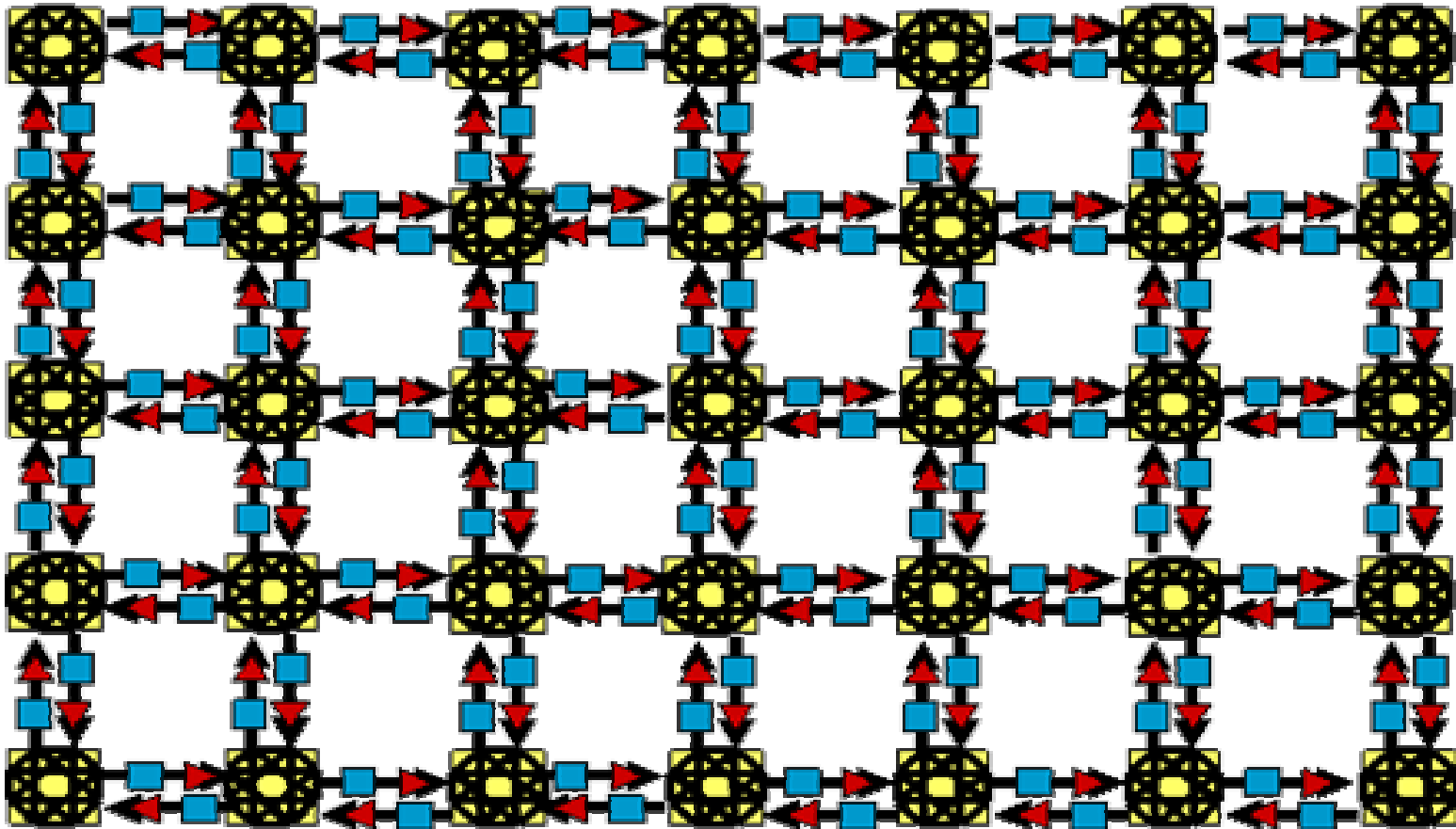
**Advisor: Dr Gary Evans**

# Two-Dimensional GSE Active Optical Lattice Filter

- Grating can couple in two or three directions
- May be written photographically
  - Two step
  - Crossed Gratings

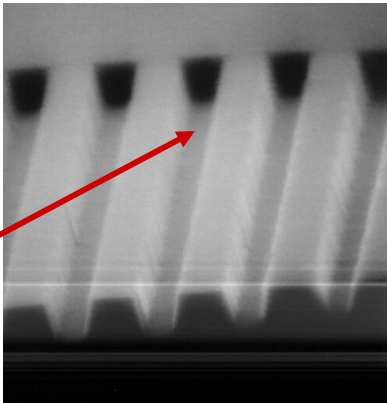
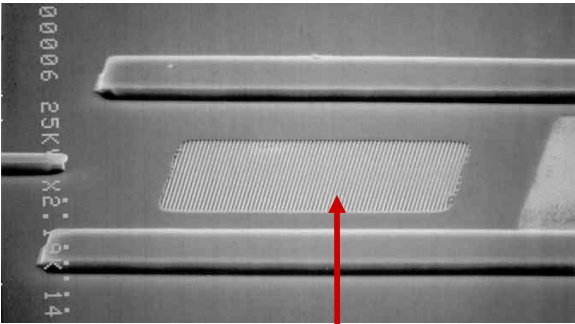
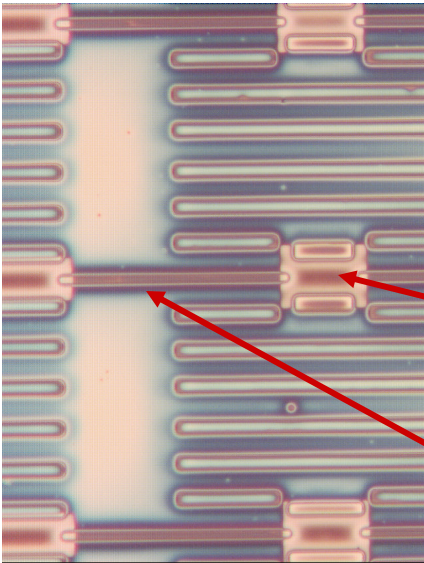
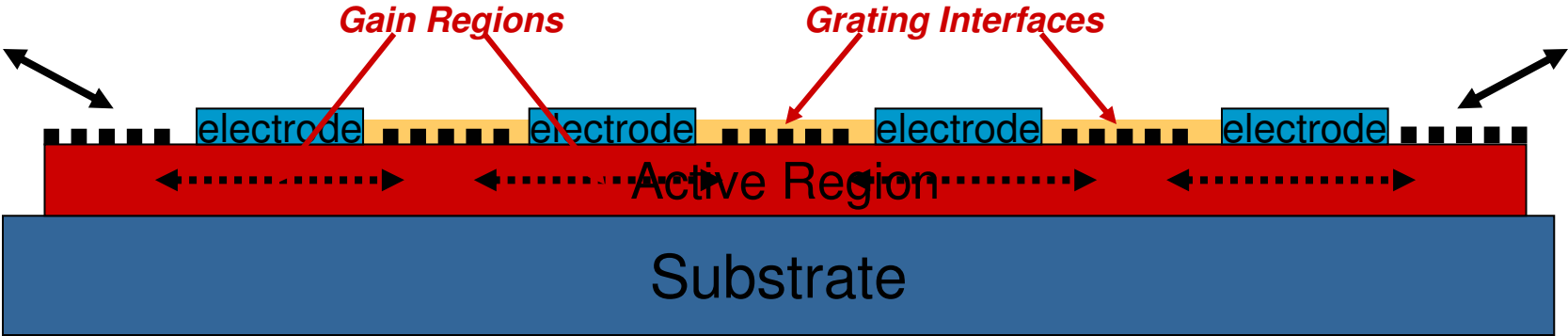


# Two-dimensional Active Optical Lattice Filter



# Grating Surface Emitter Photonic IC

*We are proposing to adapt the Photodigm device to active optical filters*



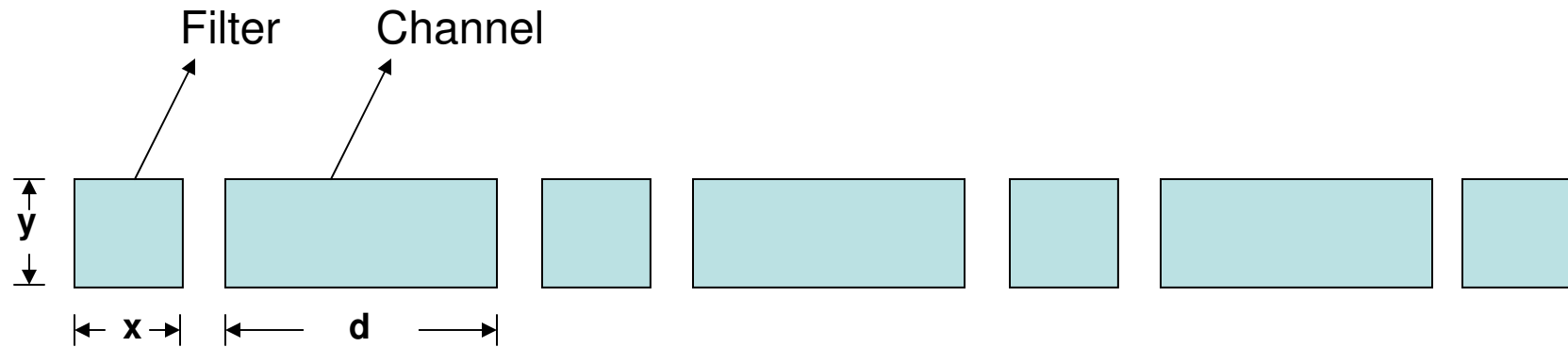
*Gain Region*

*Grating*

**Photodigm**

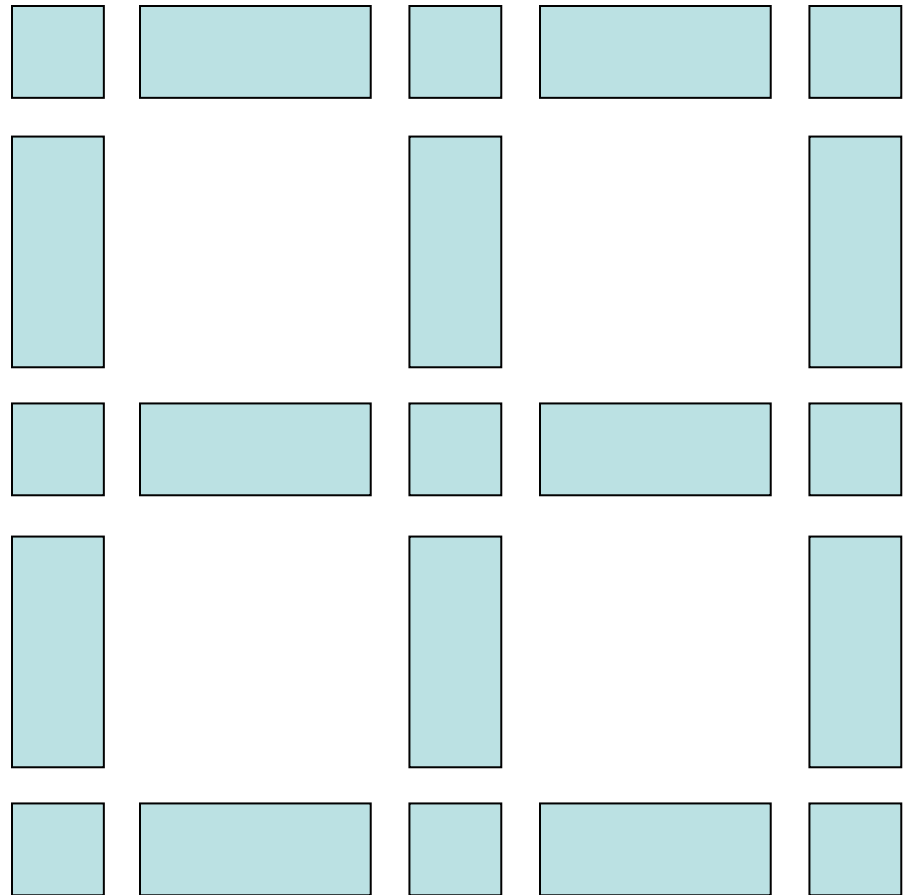
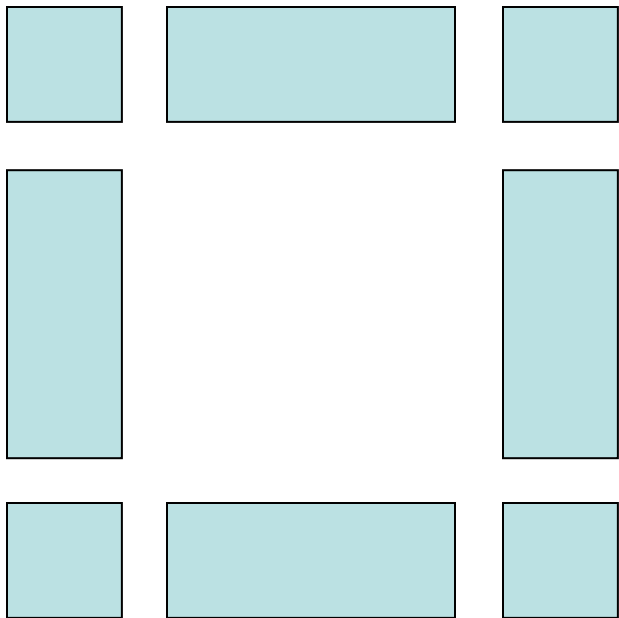


# Some critical data for the IC



$x=30 \text{ um};$   
 $y=30 \text{ um};$   
 $d=120 \text{ um}$

# Two dimensional view



# Mask design for the IC

- Mask 1: ActiveFilter\_Ridge---Define the active filter area, ridge guide laser area and the lift off area.
- Mask 2: ActiveFilter\_RidgeContact---Define the ridge contact area of the ridge guide laser.
- Mask 3: ActiveFilter\_Metal---Define the lift off area to separate the devices
- Mask 4: ActiveFilter\_Platting---Define the plating area.

Now let us review the Autocad file  
for the mask design!

Note: The Advance reproductions Corp will supply  
the service for producing masks.