

**Confidential**

# Onsite inspection

---

## ELS-7500EX

**ELIONIX**

# Pattern

---

- Pattern -

File name: “kagan\_mrl\_2006”

# Condition

---

## EB writing

Acceleration voltage: 50kV

Field size: 150um

Pixel number: 60,000 x 60,000

Beam current: 20 pA

Dose time:

Pattern1 / 0.85 usec/dot    Pattern4 / 0.75 usec/dot

Pattern2 / 0.85 usec/dot    Pattern5 / 0.75 usec/dot

Pattern3 / 0.85 usec/dot    Pattern6 / 0.85 usec/dot

## Resist coating

Thickness: 100nm (ZEP-520A)

## Development

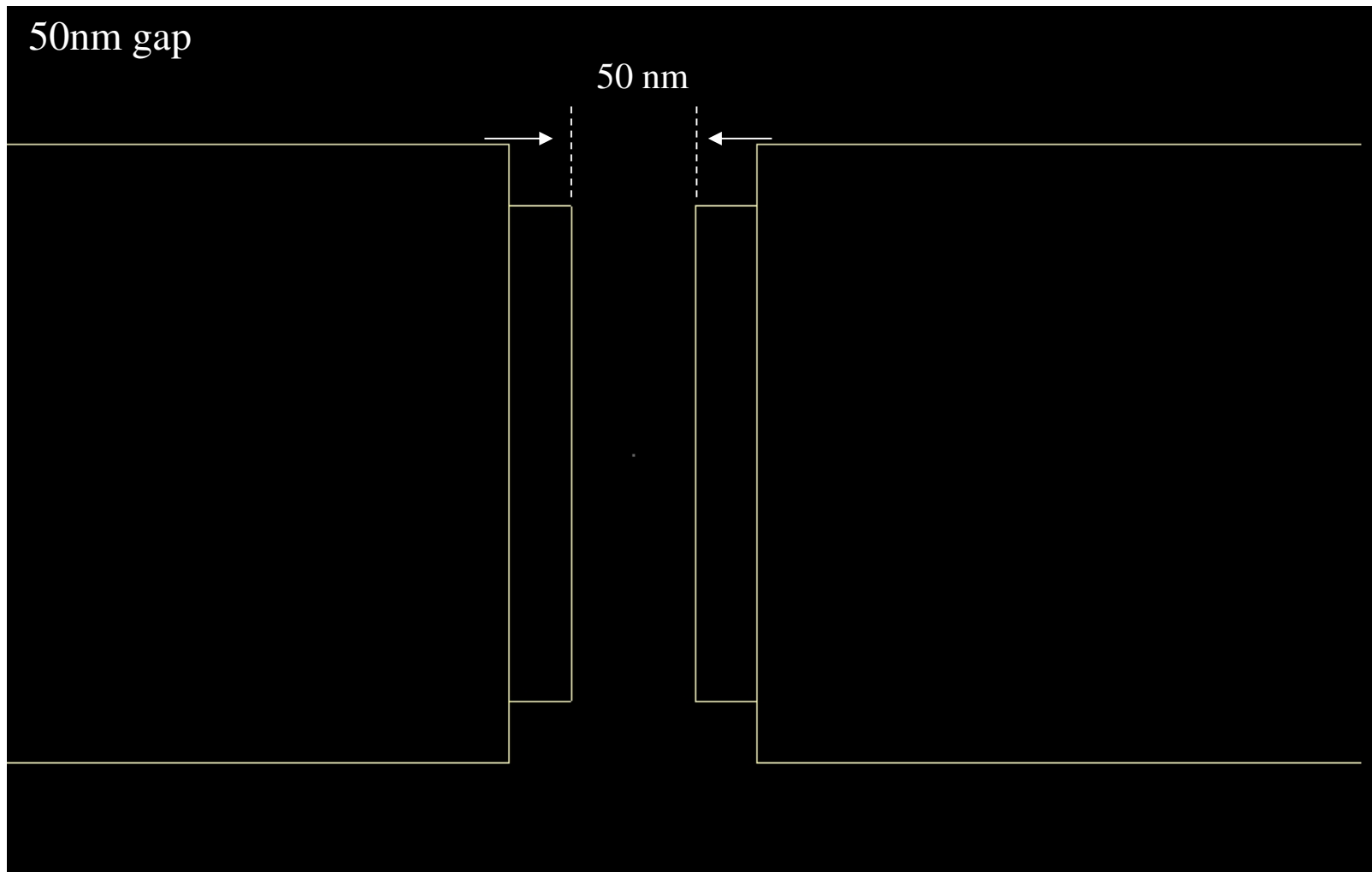
Solution: O- xylene

Temp: Room temperature

Time: 15sec

# Pattern “kagan\_mrl\_2006”

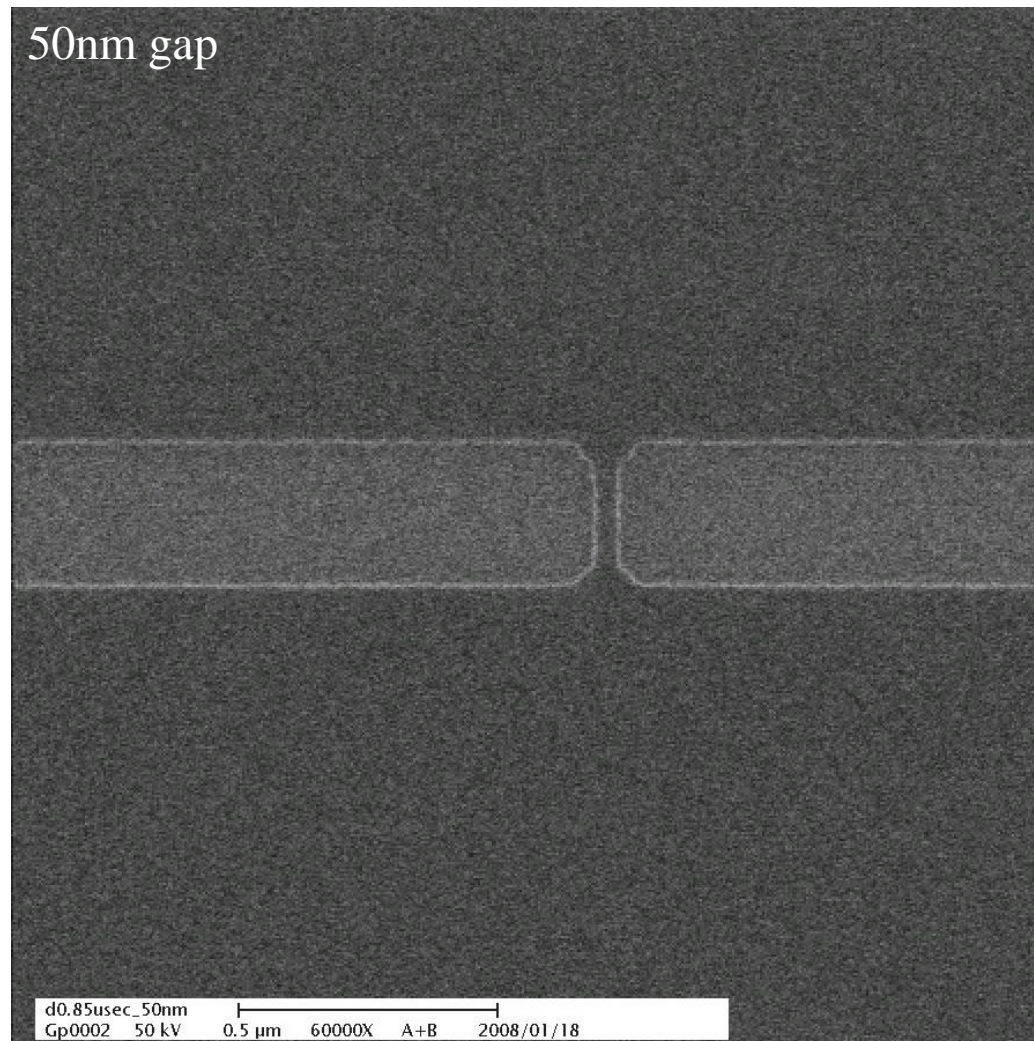
- Pattern.1. (CAD pattern) -



# Pattern “kagan\_mrl\_2006”

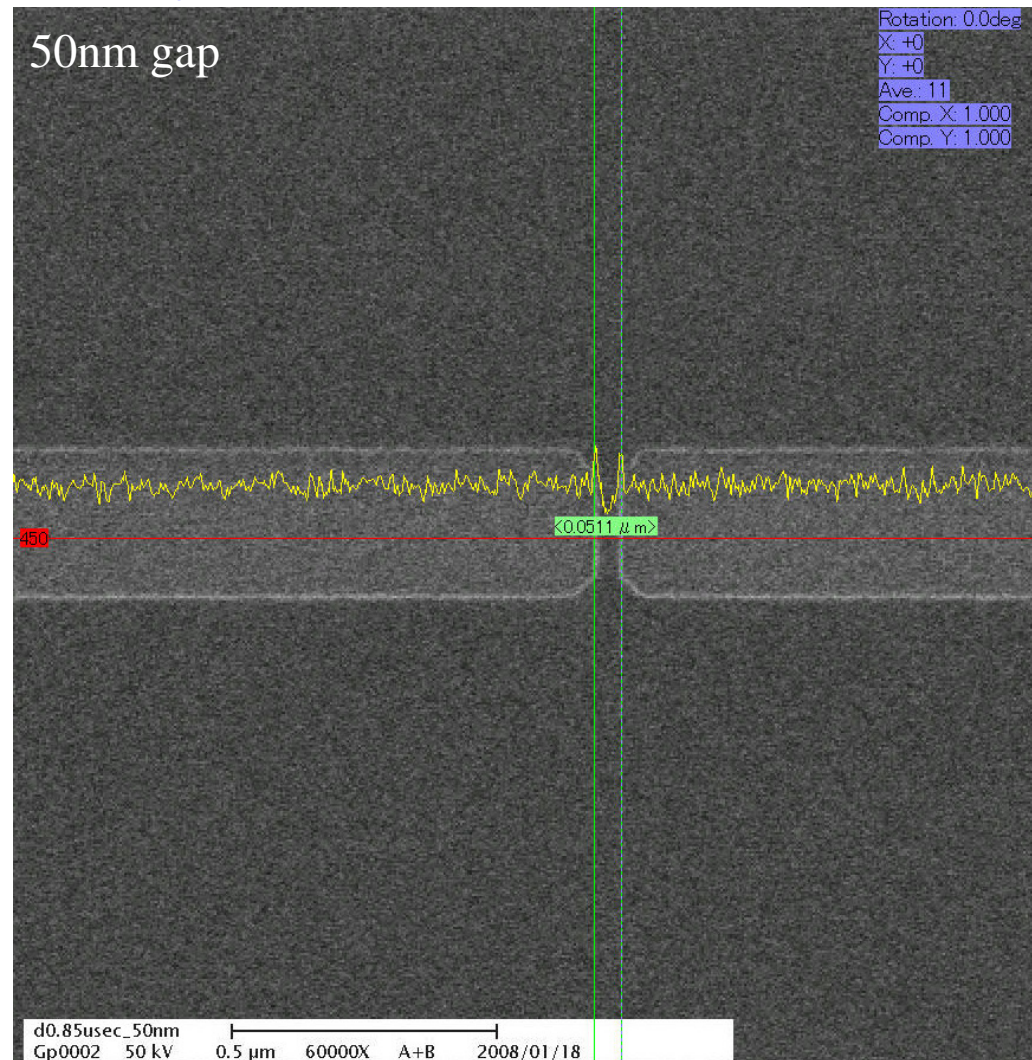
---

- Pattern.1. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

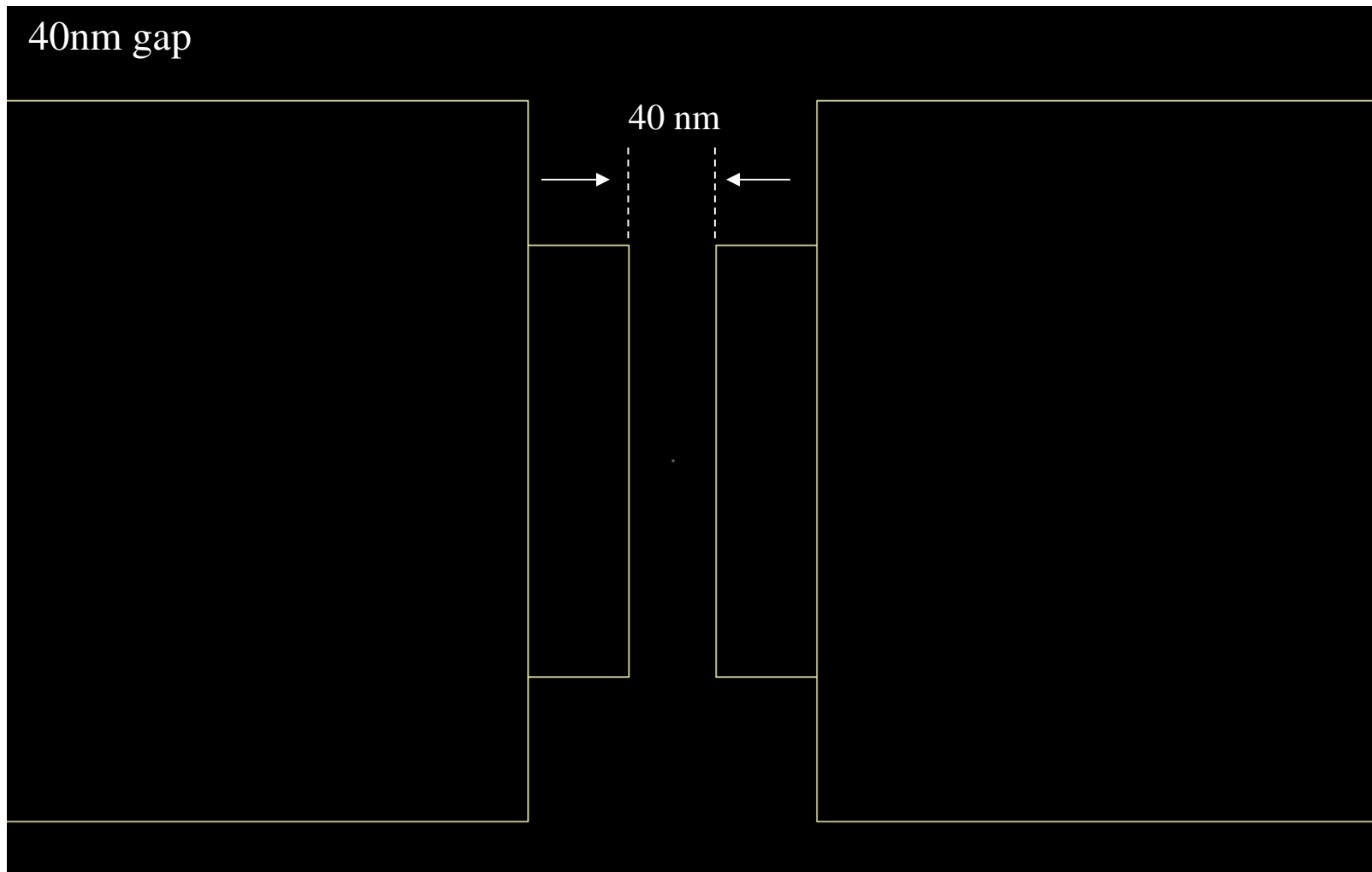
- Pattern.1. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

---

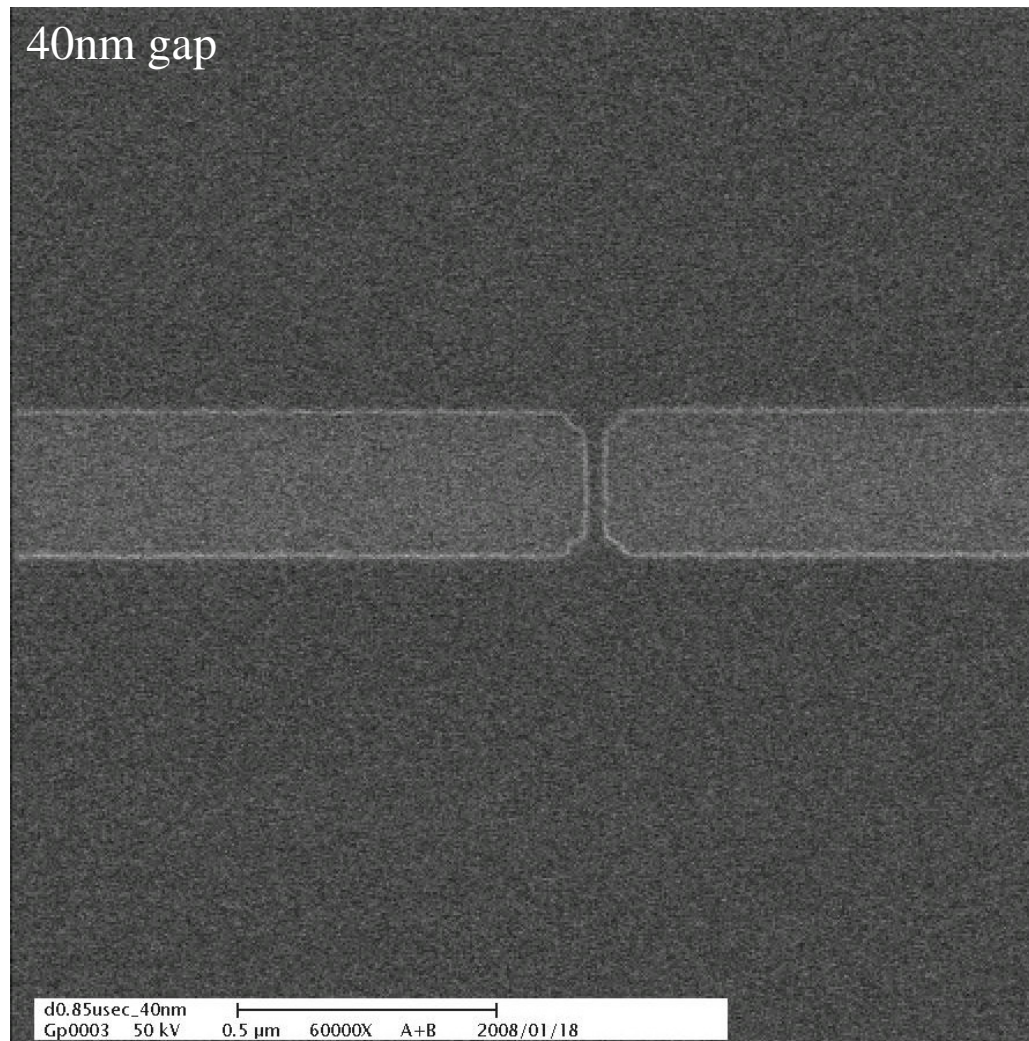
- Pattern.2. (CAD pattern) -



# Pattern “kagan\_mrl\_2006”

---

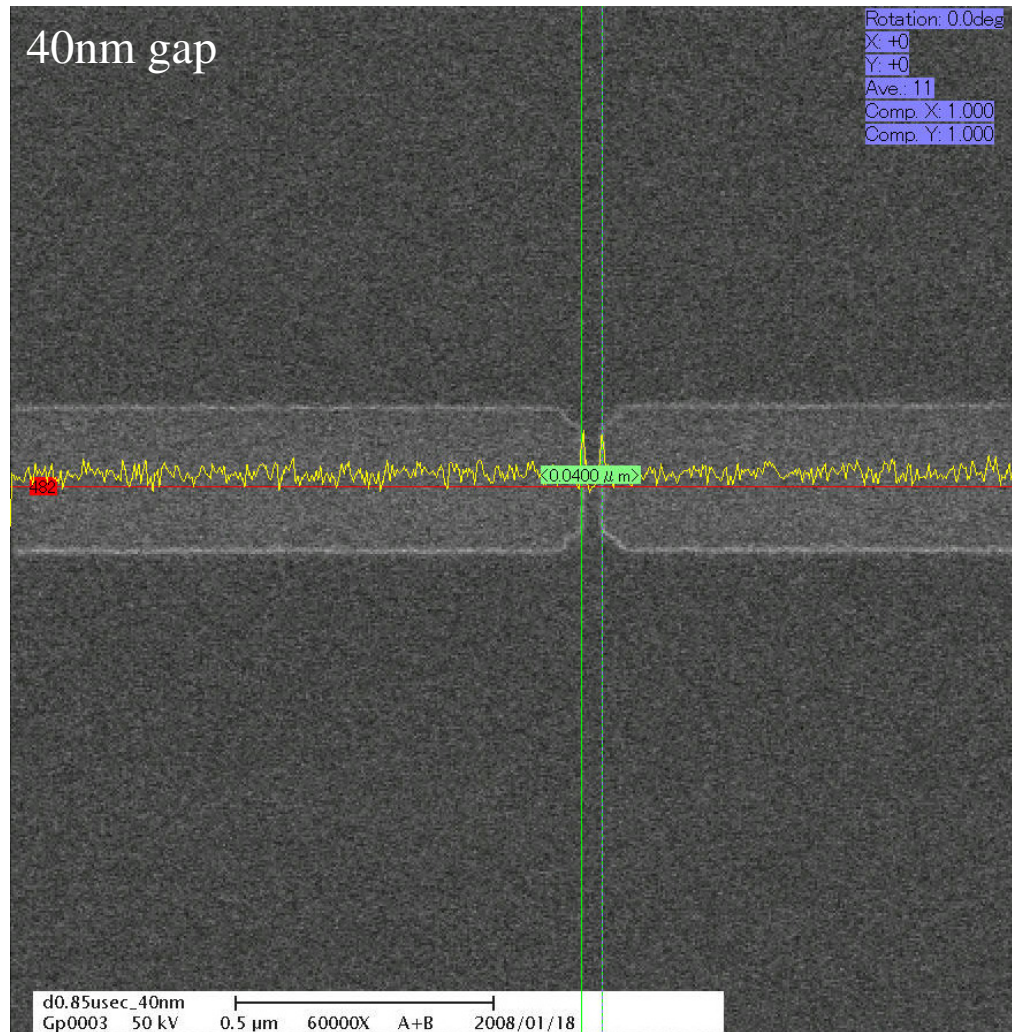
- Pattern.2. (SEM Image) -





# Pattern “kagan\_mrl\_2006”

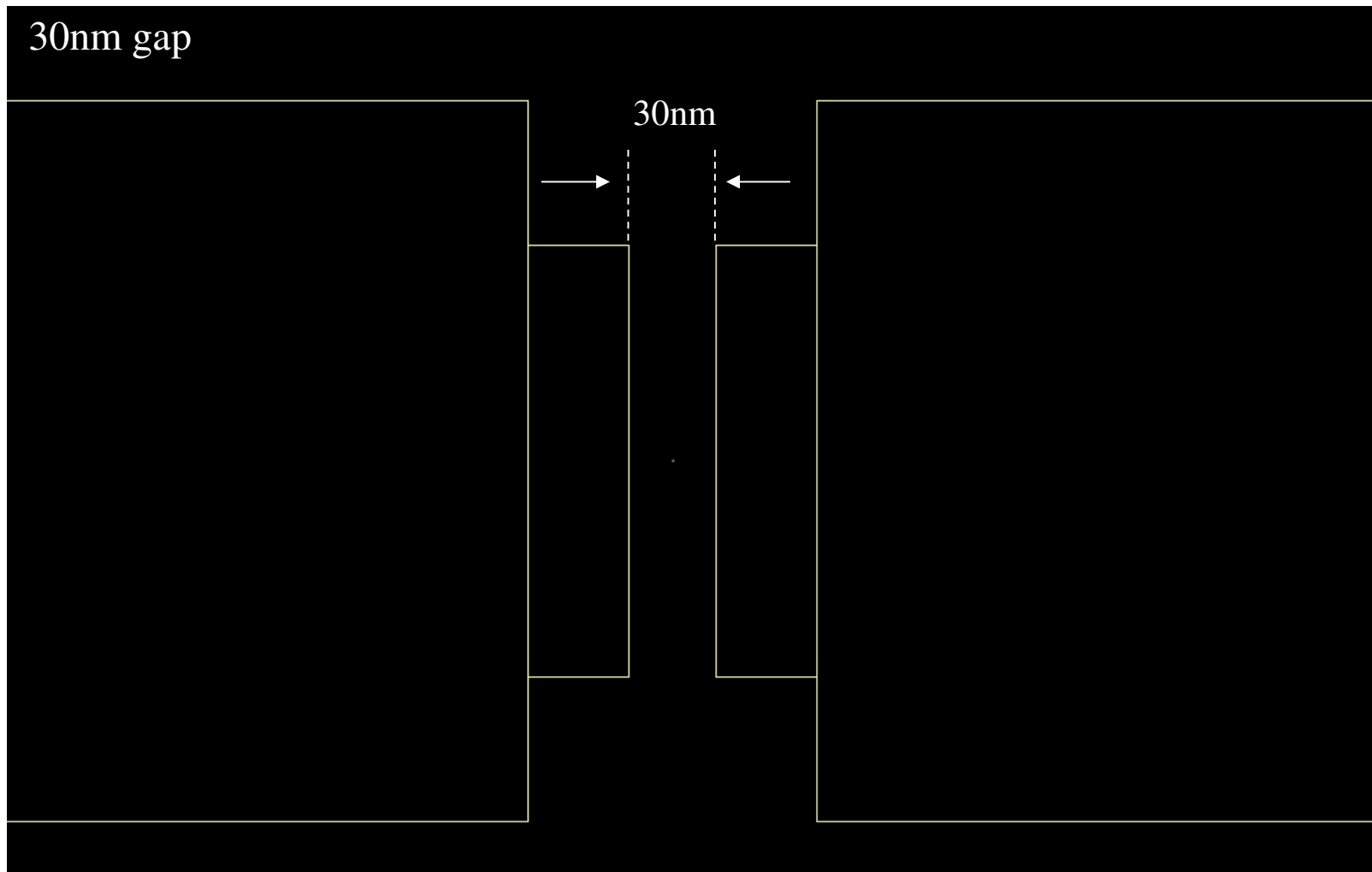
- Pattern.2. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

---

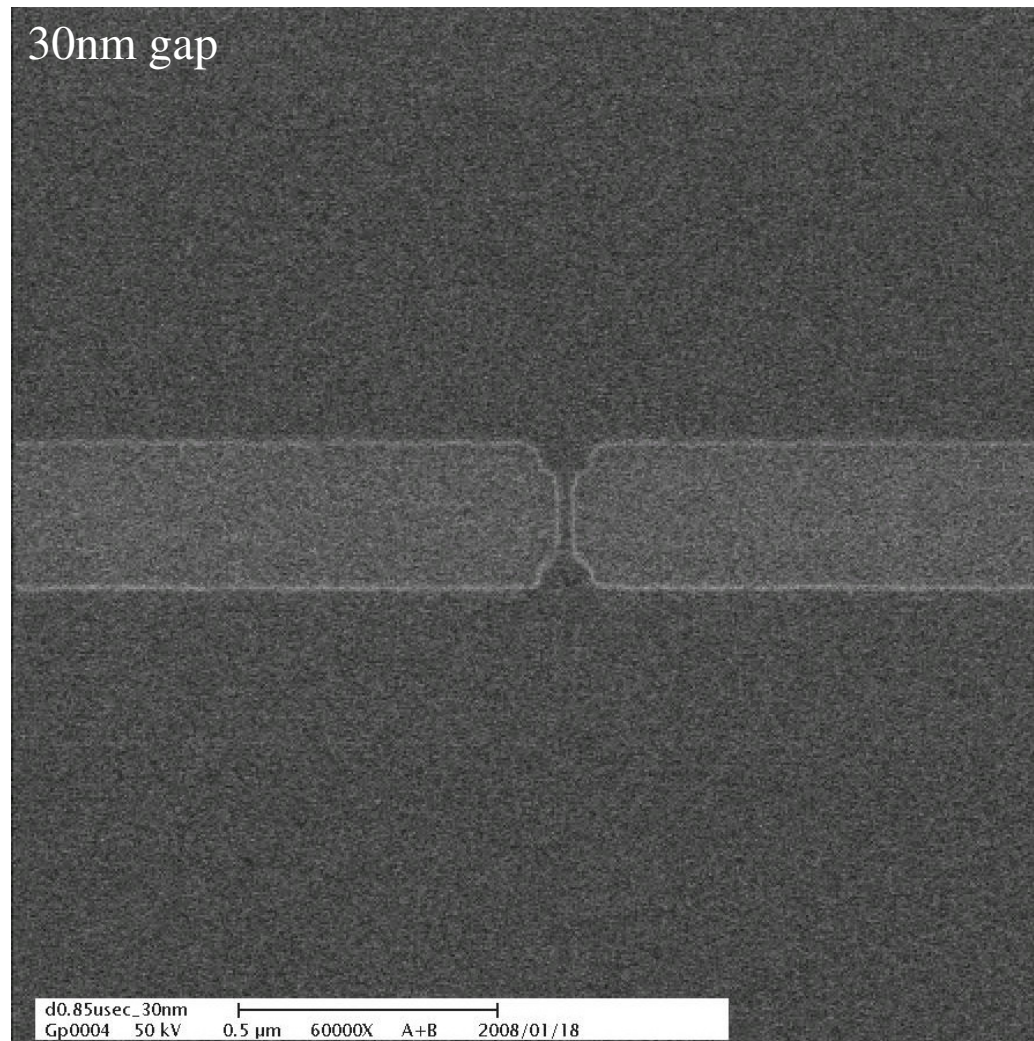
- Pattern.3. (CAD pattern) -



# Pattern “kagan\_mrl\_2006”

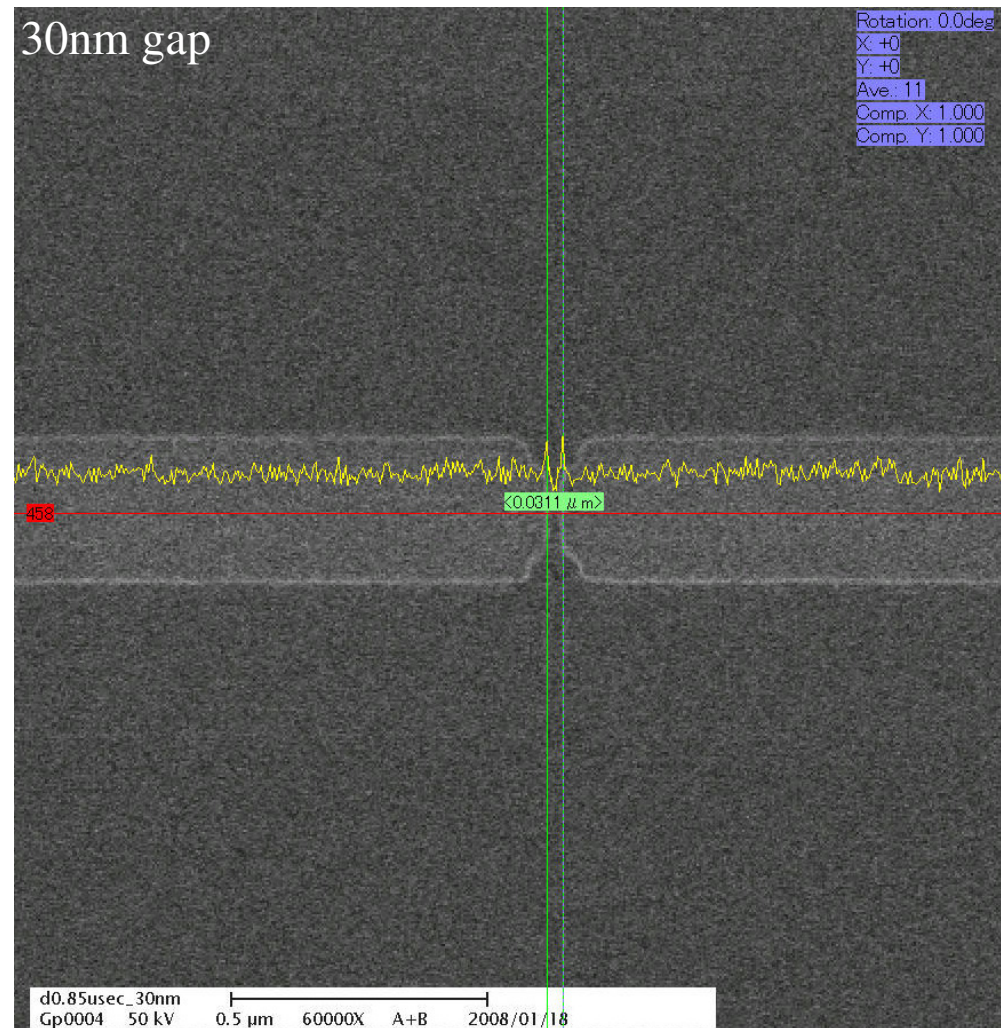
---

- Pattern.3. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

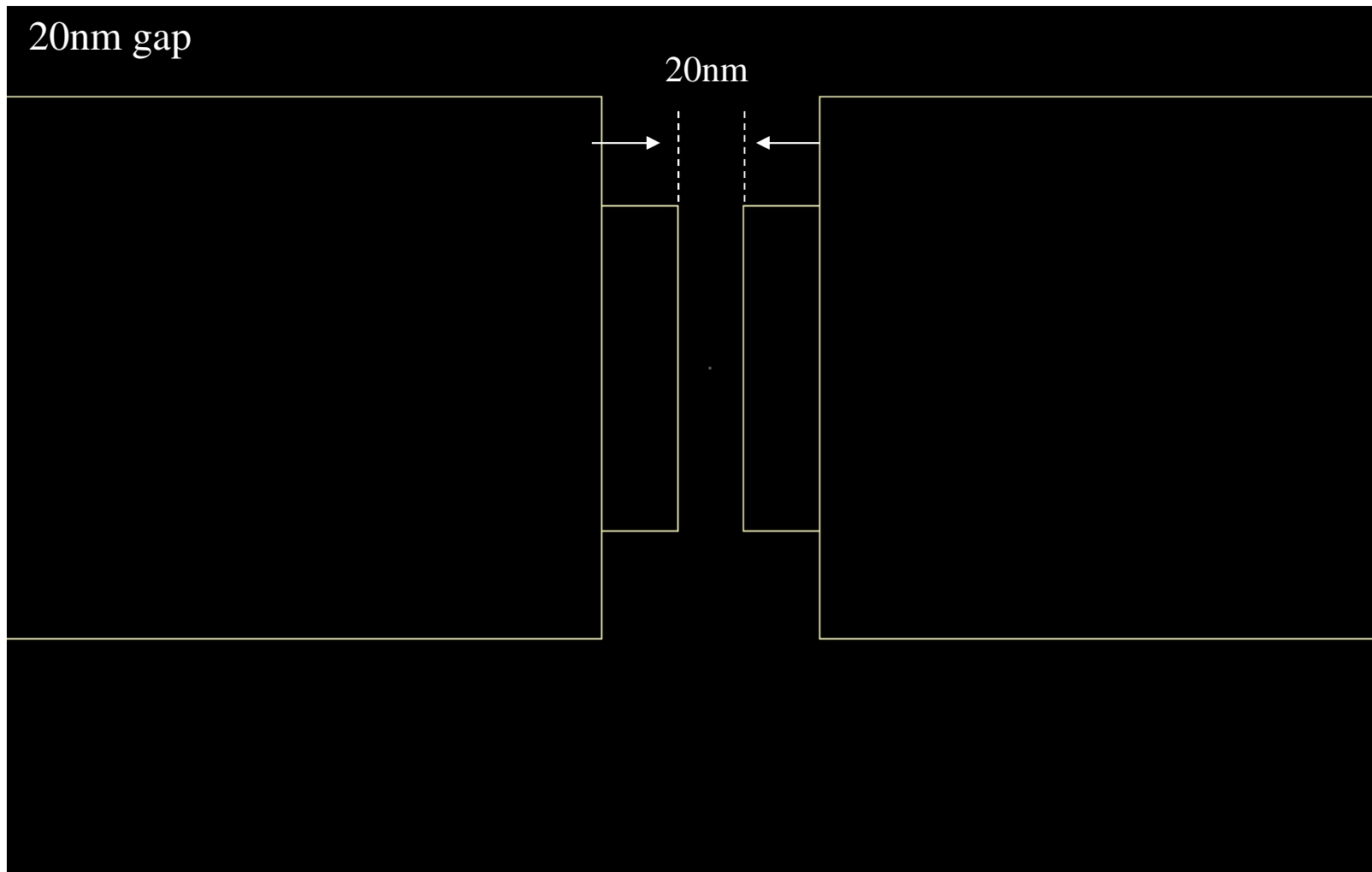
- Pattern.3. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

---

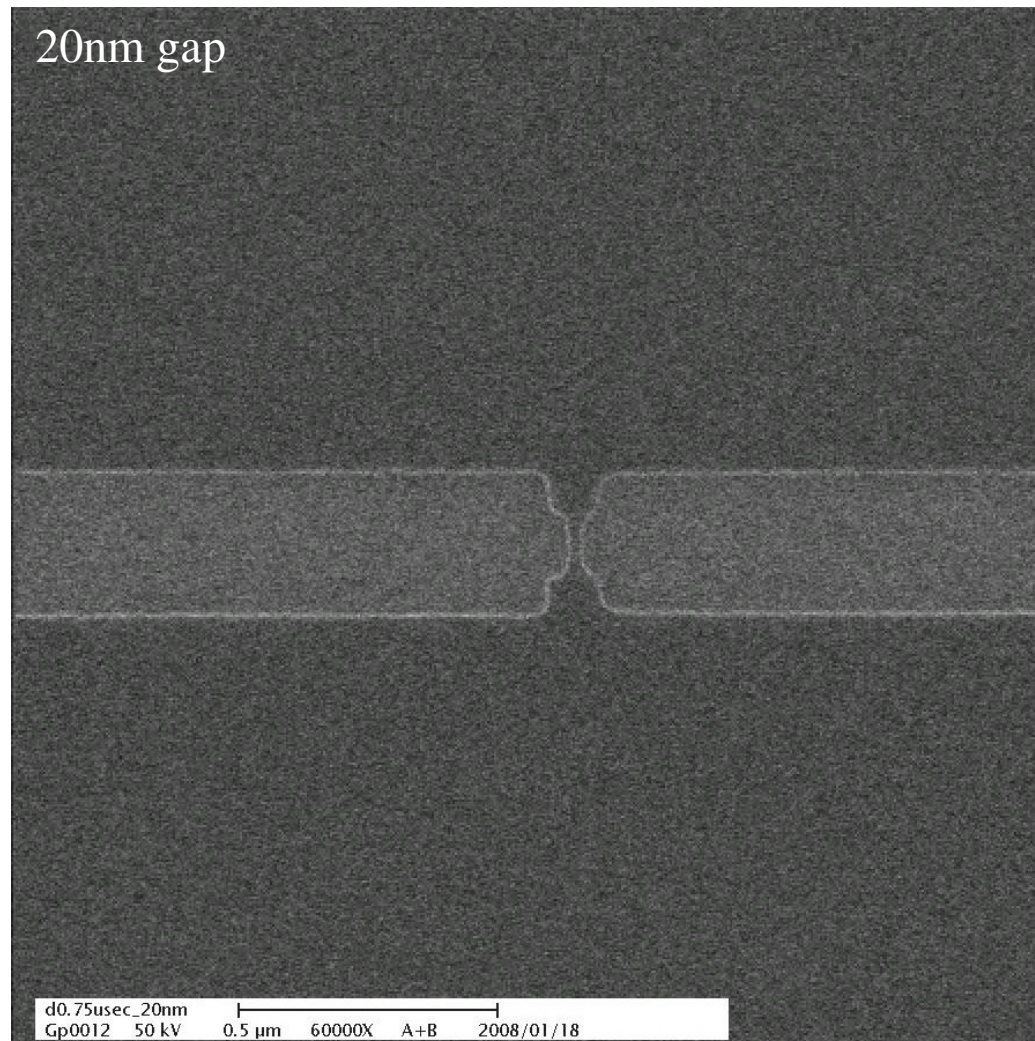
- Pattern.4. (CAD pattern) -



# Pattern “kagan\_mrl\_2006”

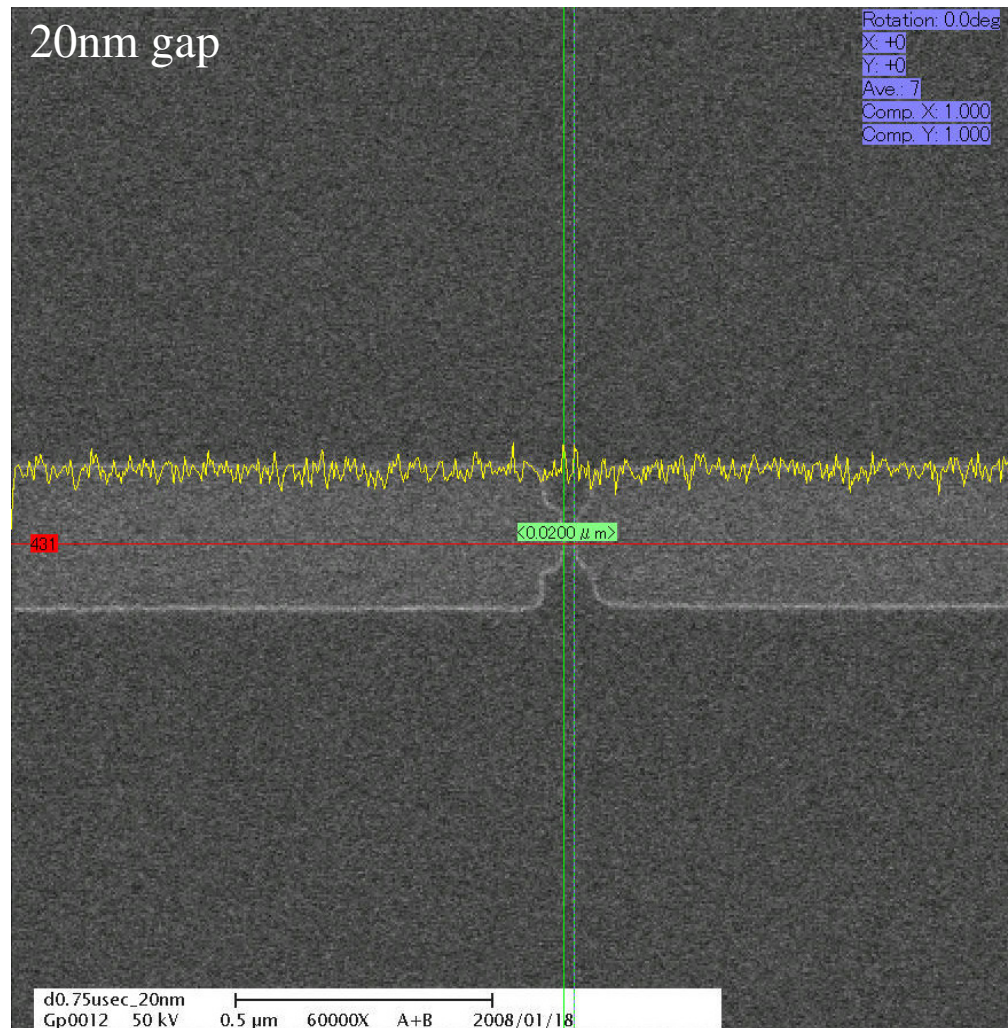
---

- Pattern.4. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

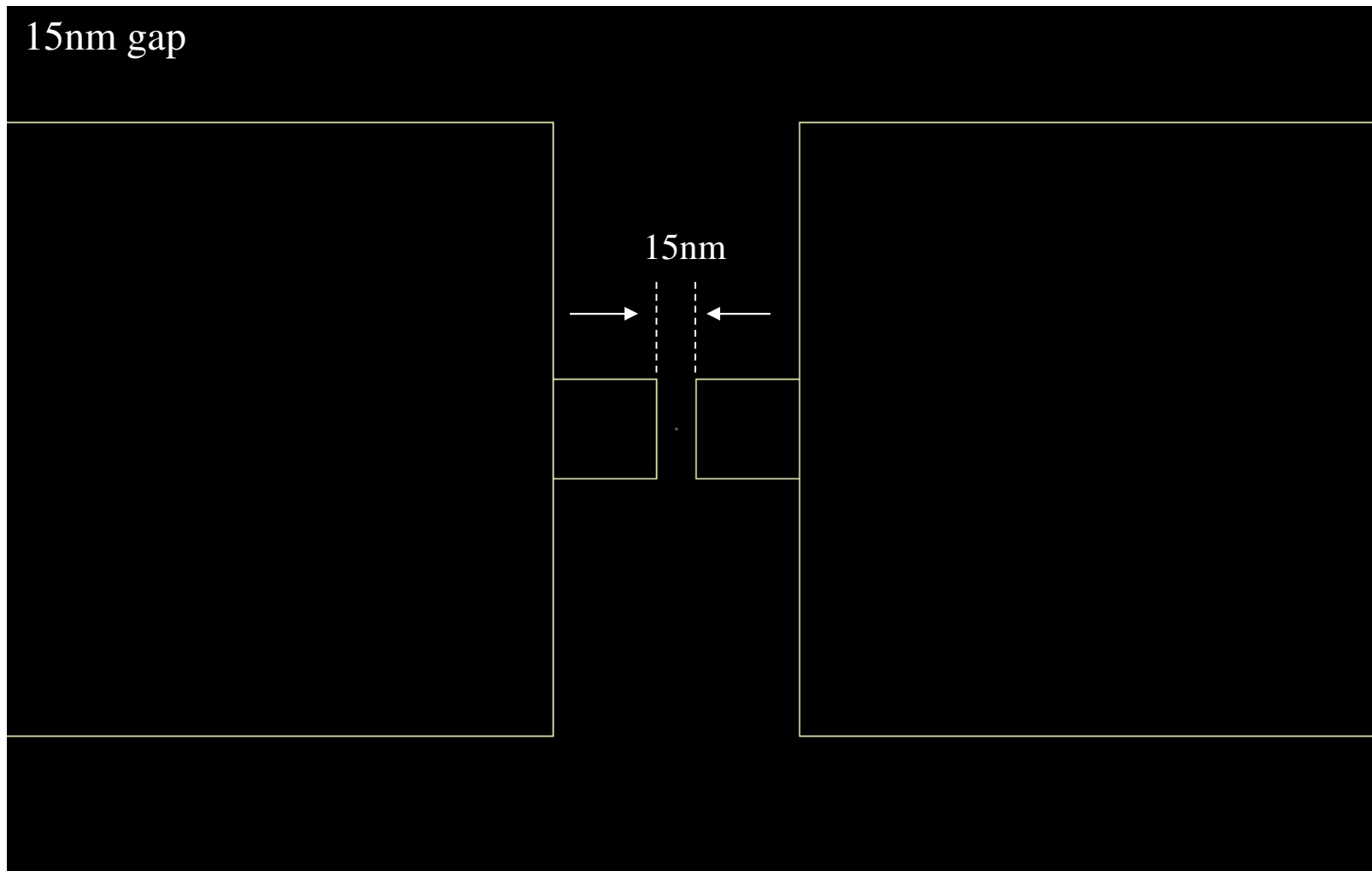
- Pattern.4. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

---

- Pattern.5. (CAD pattern) -

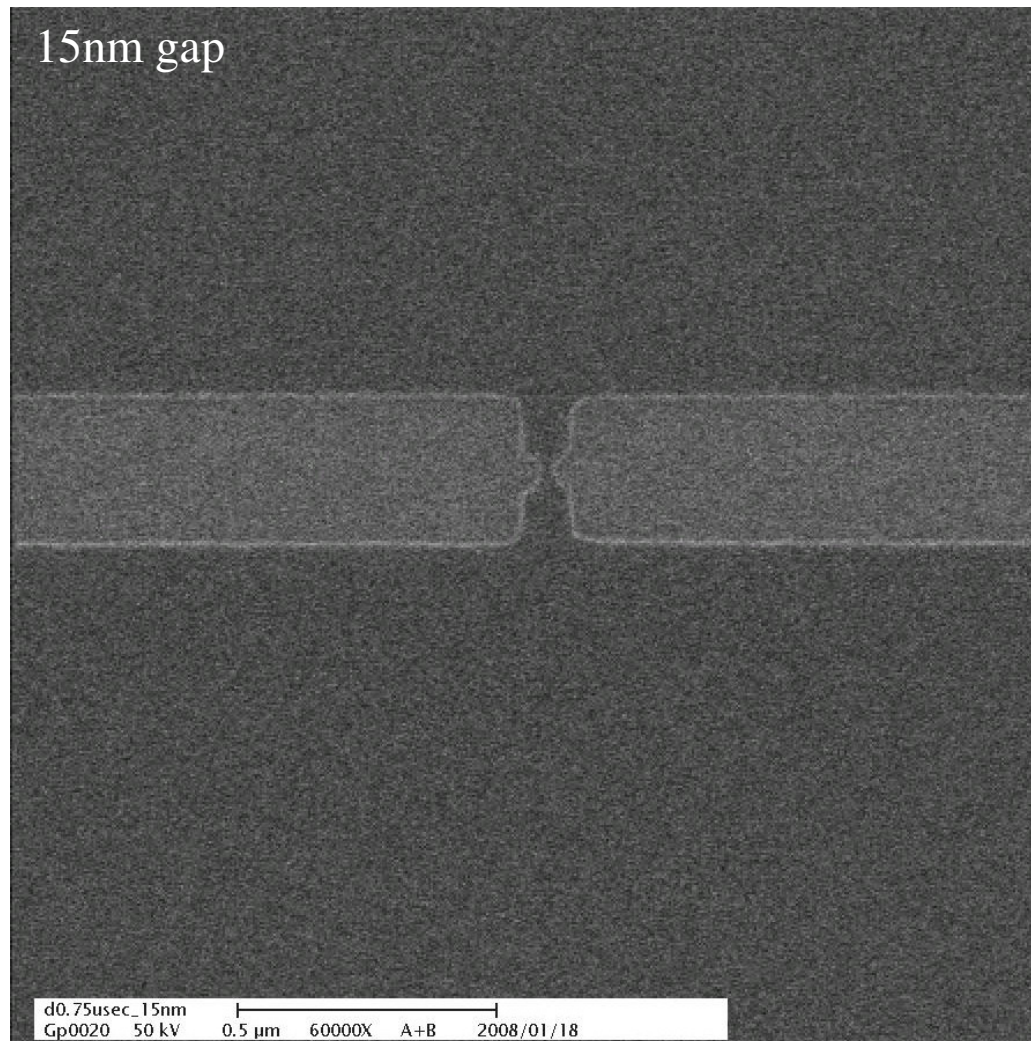




# Pattern “kagan\_mrl\_2006”

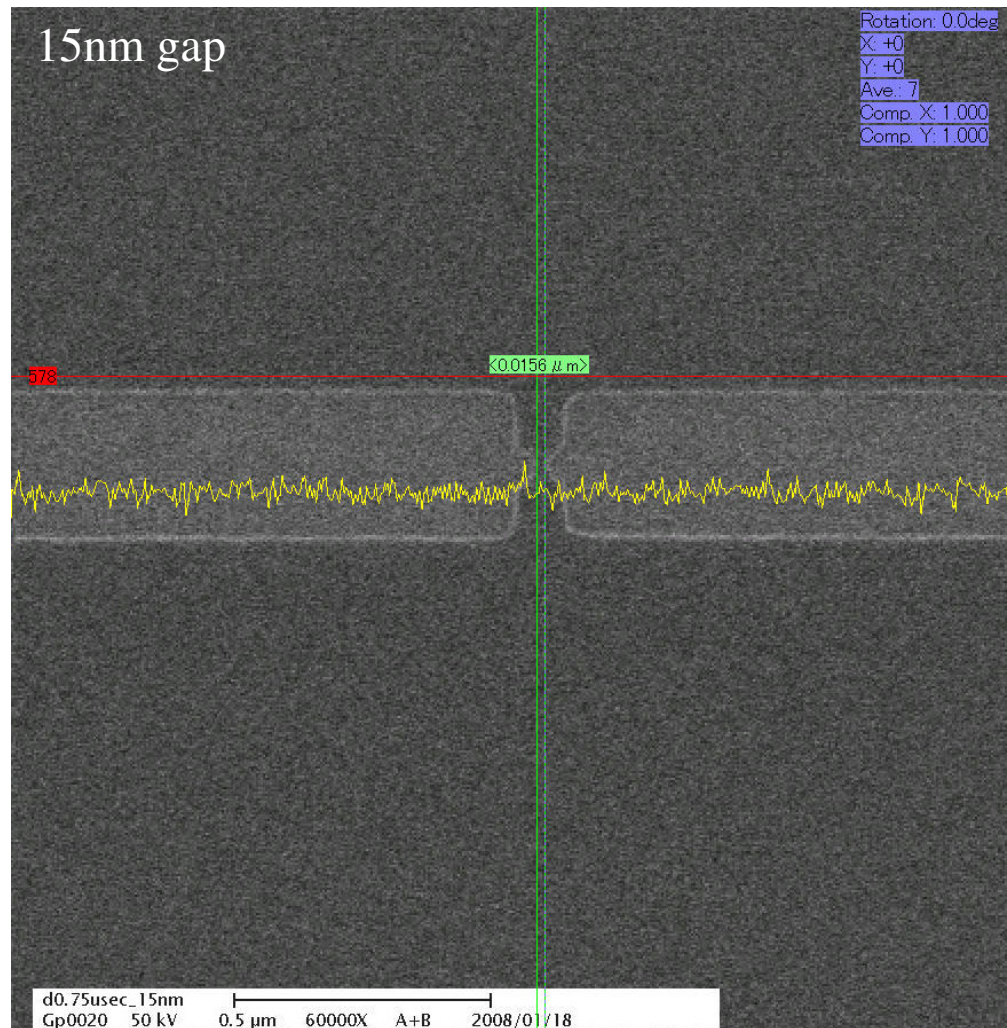
---

- Pattern.5. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

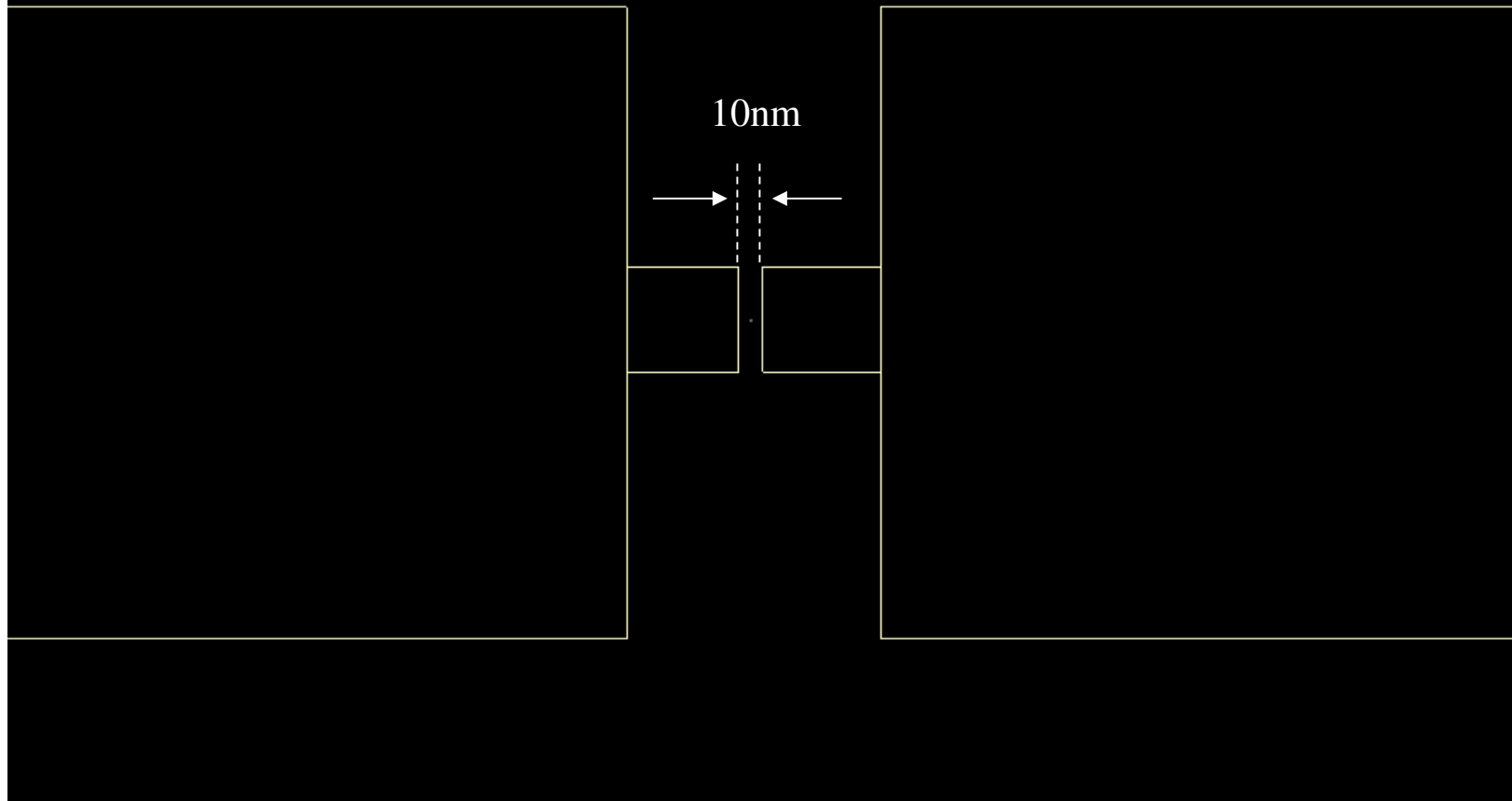
- Pattern.5. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

- Pattern.6. (CAD pattern) -

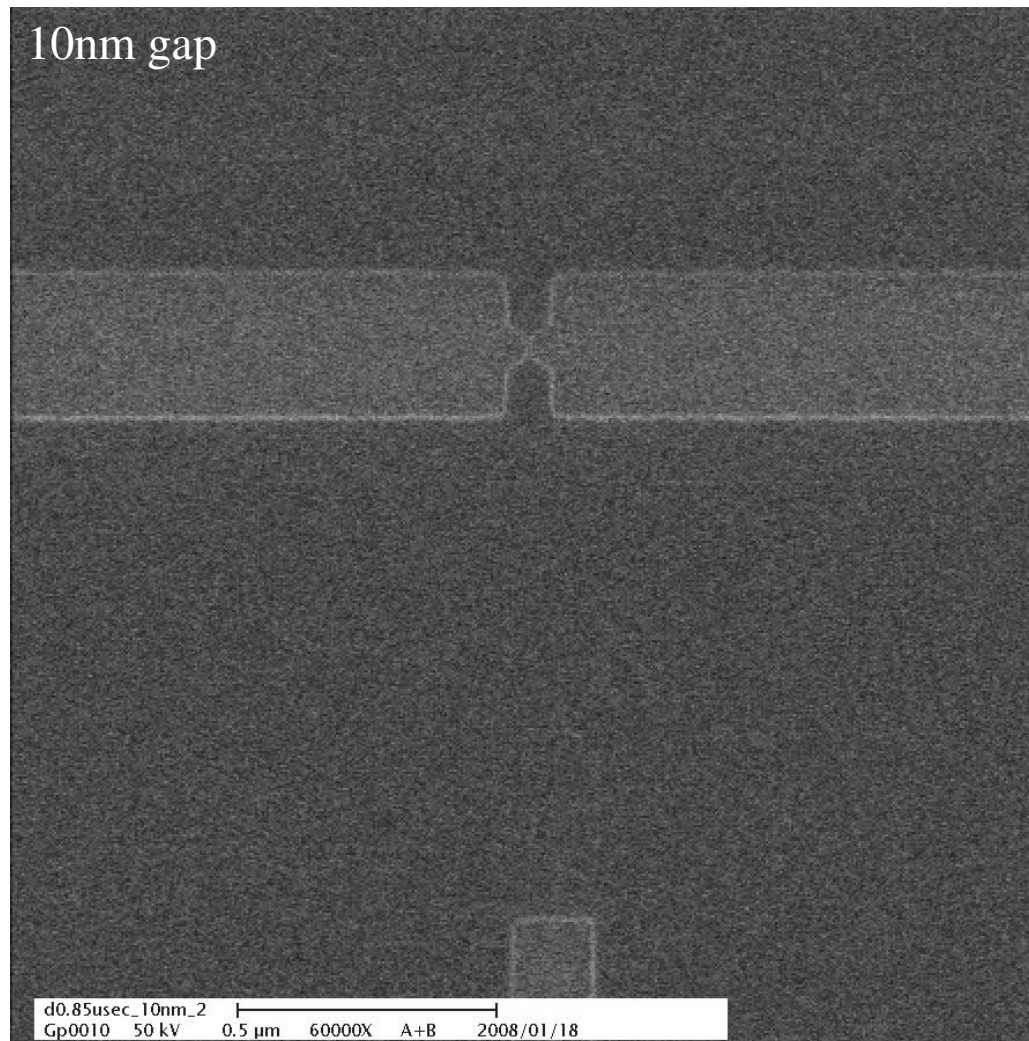
10nm gap



# Pattern “kagan\_mrl\_2006”

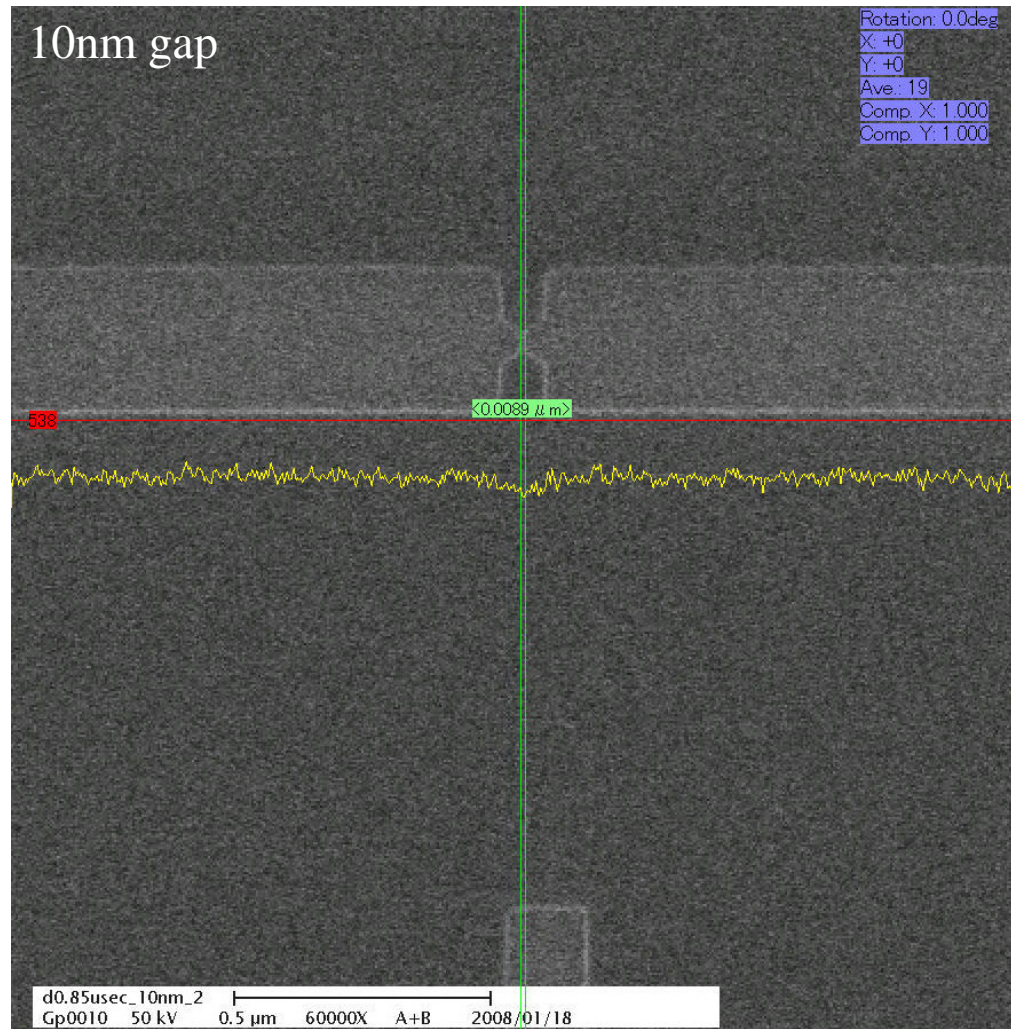
---

- Pattern.6. (SEM Image) -



# Pattern “kagan\_mrl\_2006”

- Pattern.6. (SEM Image) -



# Pattern

---

- Pattern -

File name: “nano van der spiegel”

# Condition

---

## EB writing

Acceleration voltage: 50kV

Field size: 150um

Pixel number: 60,000 x 60,000

Beam current: 20 pA

Dose time: Pattern1 / 0.5 usec/dot (Rectangle element)  
Pattern2 / 0.9 usec/dot (Rectangle element)  
Pattern3 / 4.8 usec/dot (Line element)

## Resist coating

Thickness: 100nm (ZEP-520A)

## Development

Solution: O- xylene

Temp: Room temperature

Time: 15sec

# Pattern “nano van der spiegel”

- CAD Pattern (nano van der spiegel) -

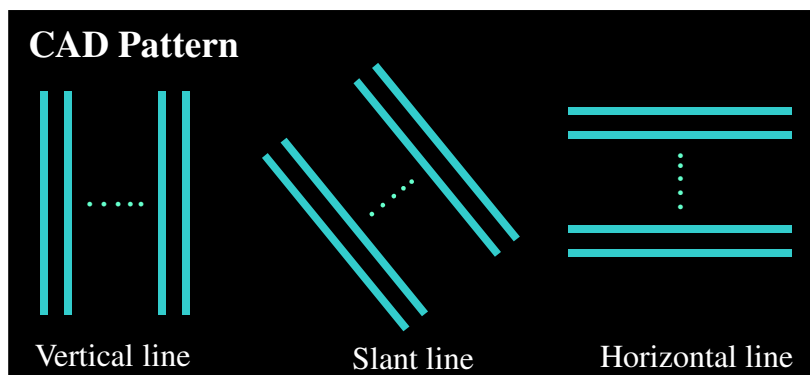
## 1) 3 types of L&S

- Pattern.1: 50nm width, 150nm pitch
- Pattern.2: 20nm width, 120nm pitch
- Pattern.3: 10nm width, 60nm pitch

## 2) 3 types of pattern directions at each L&S

- Vertical line
- Horizontal line
- Slant line

*\*) Resist thickness is 100nm*



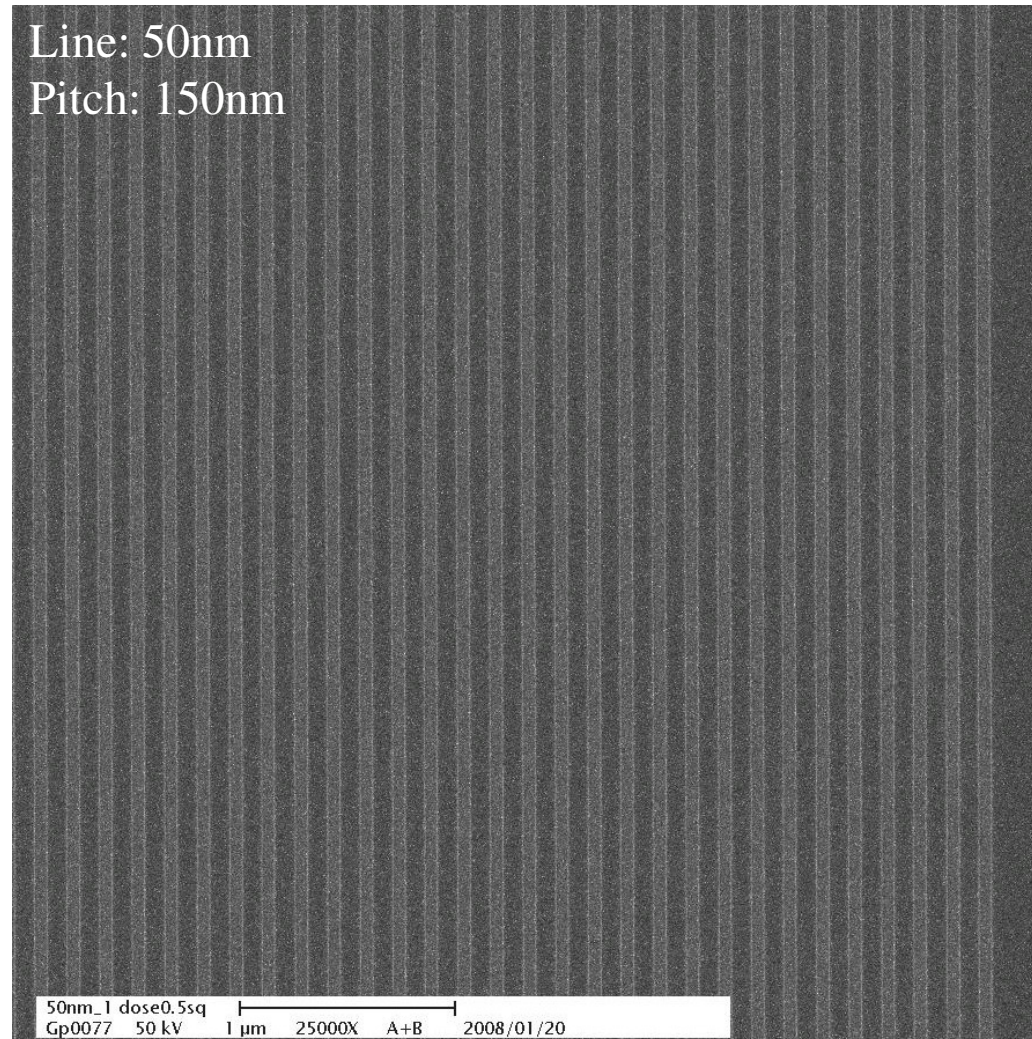
	Line width (nm)	Pitch (nm)
Pattern.1.	50	150
Pattern.2.	20	120
Pattern.3.	10	60



# Pattern “nano van der spiegel”

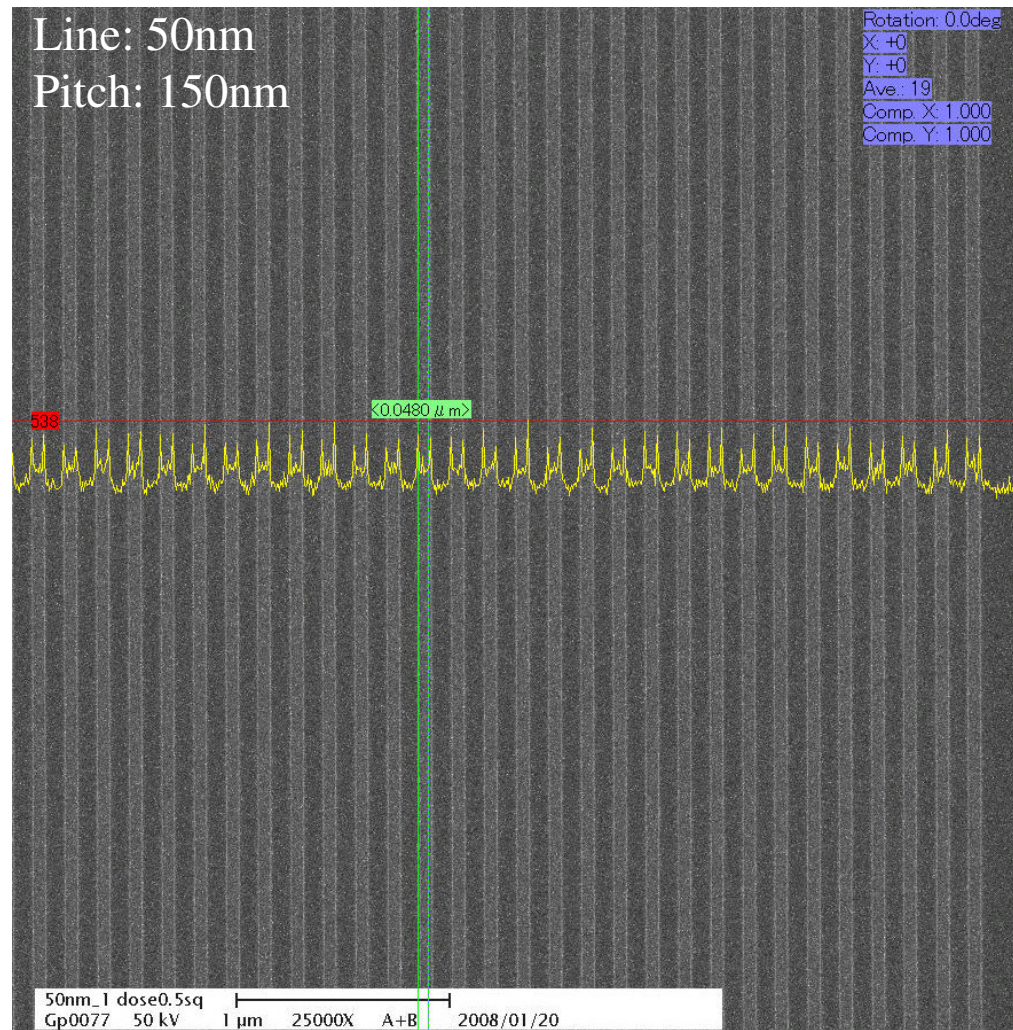
---

- Pattern.1. (Vertical line) -



# Pattern “nano van der spiegel”

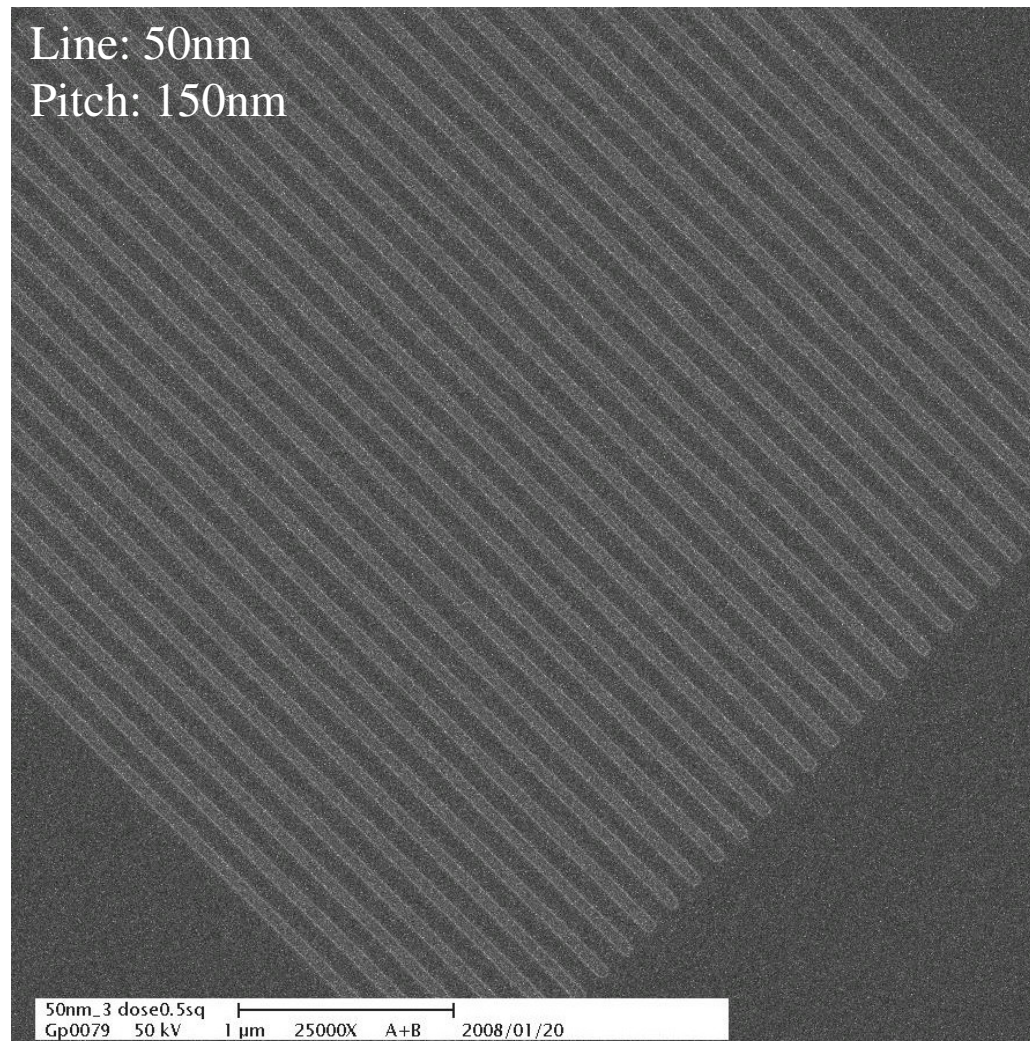
- Pattern.1. (Vertical line) -



# Pattern “nano van der spiegel”

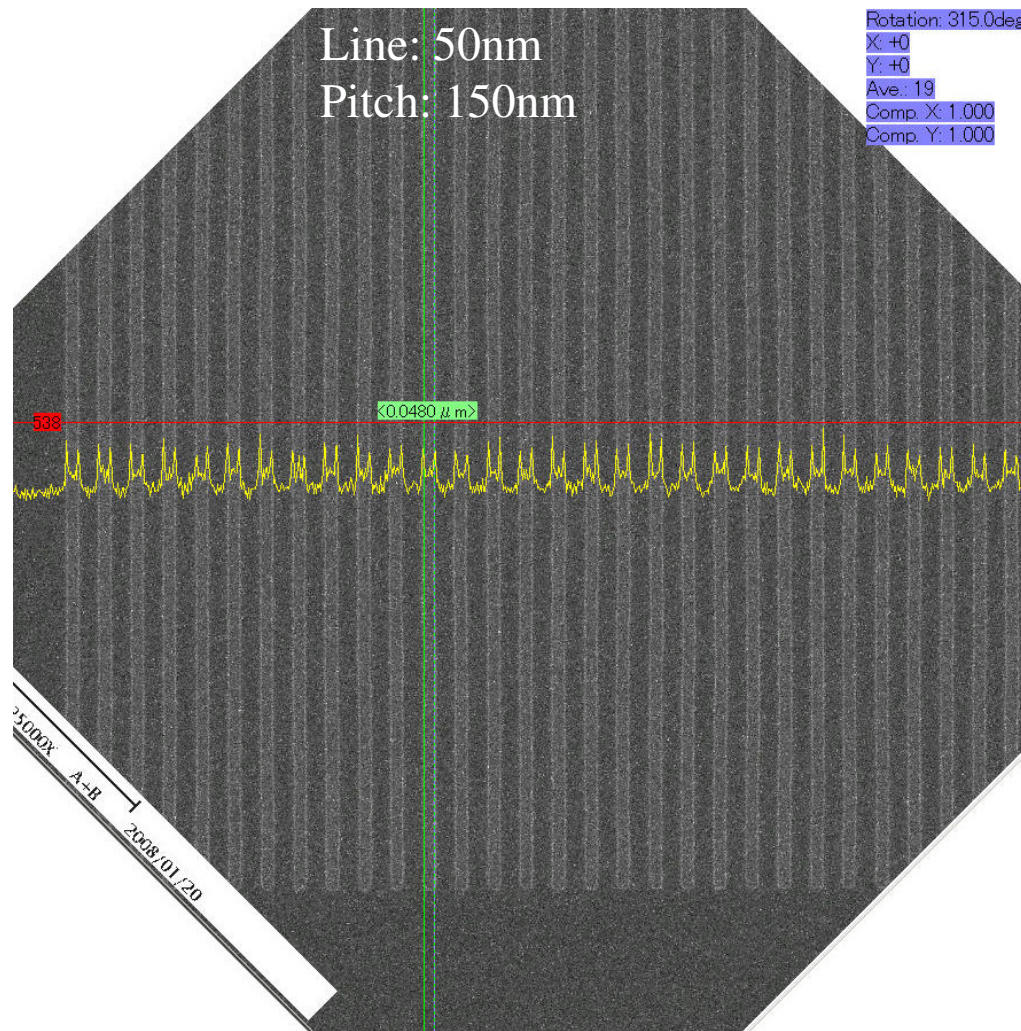
---

- Pattern.1. (Diagonal line) -



# Pattern “nano van der spiegel”

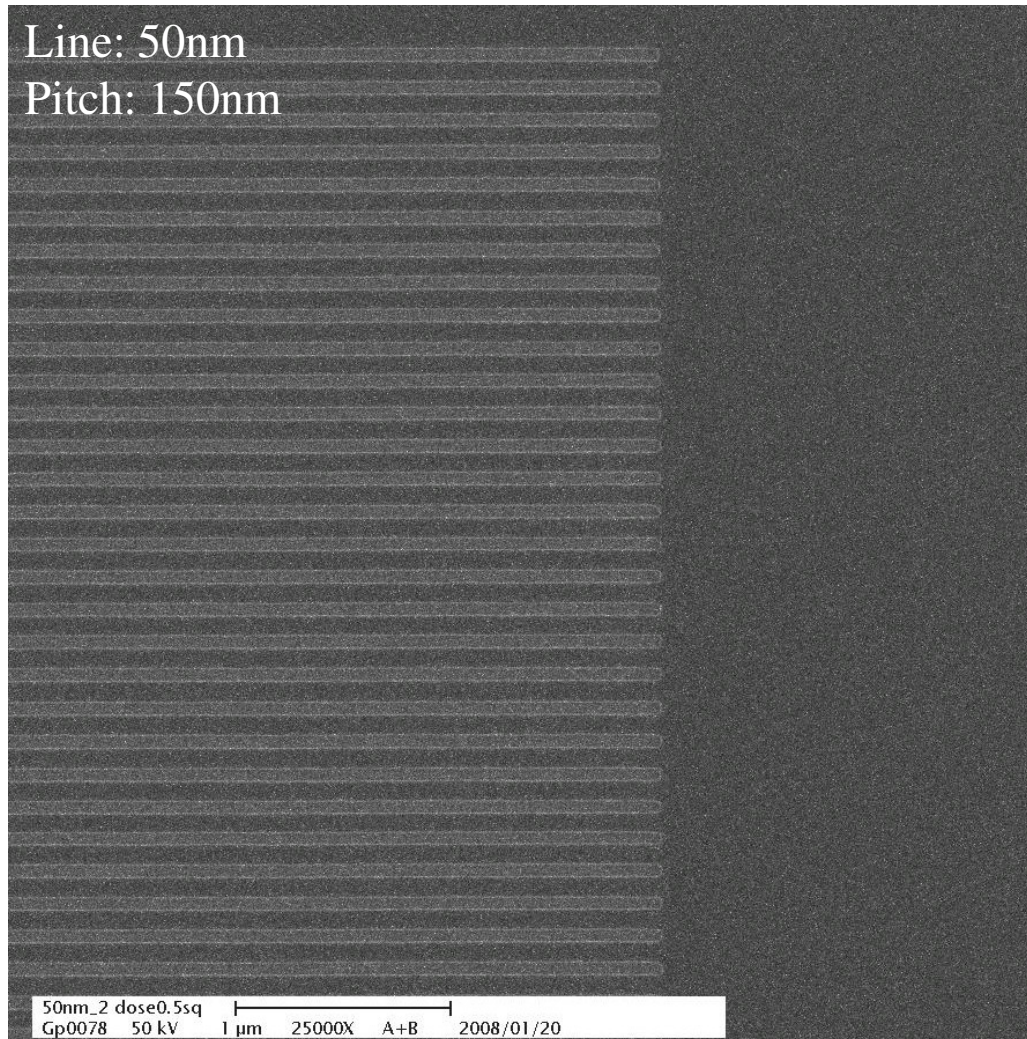
- Pattern.1. (Diagonal line) -



# Pattern “nano van der spiegel”

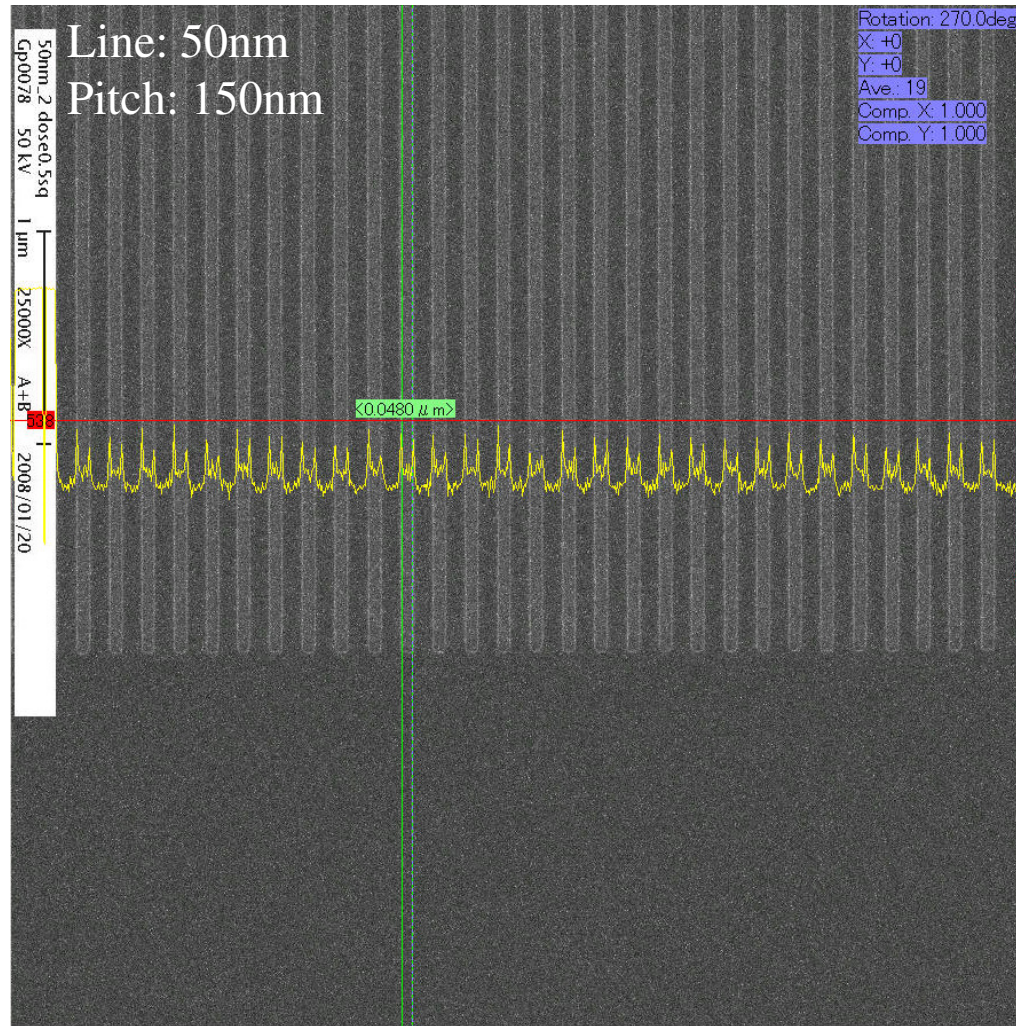
---

- Pattern.1. (Horizontal line) -



# Pattern “nano van der spiegel”

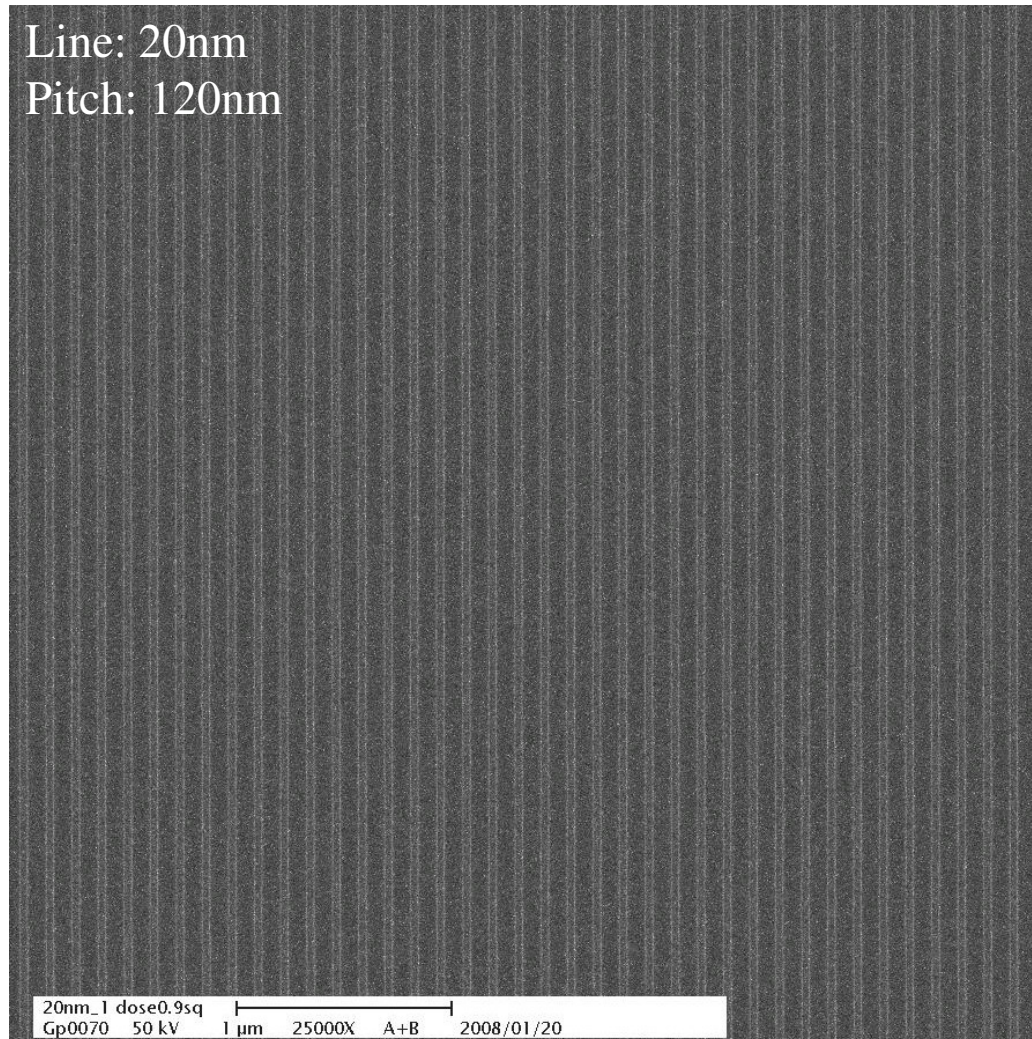
- Pattern.1. (Horizontal line) -



# Pattern “nano van der spiegel”

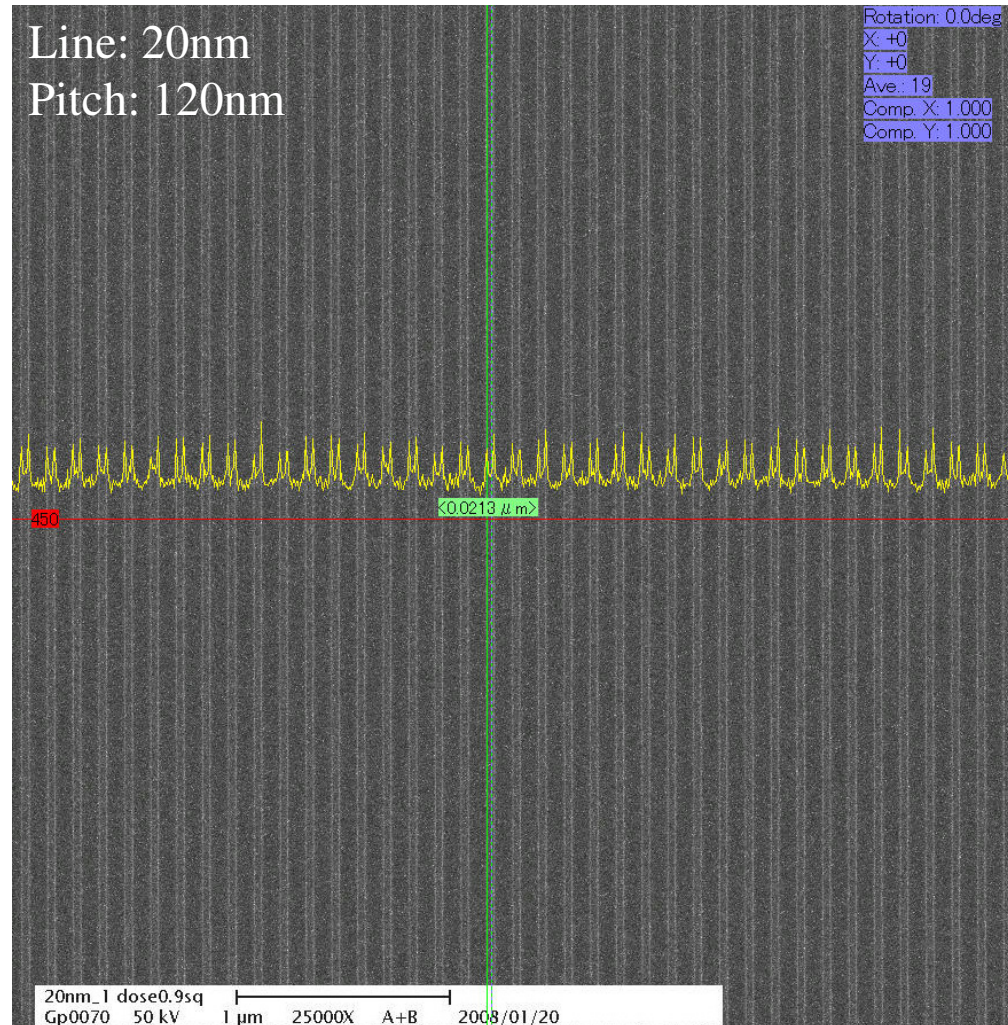
---

- Pattern.2. (Vertical line) -



# Pattern “nano van der spiegel”

- Pattern.2. (Vertical line) -

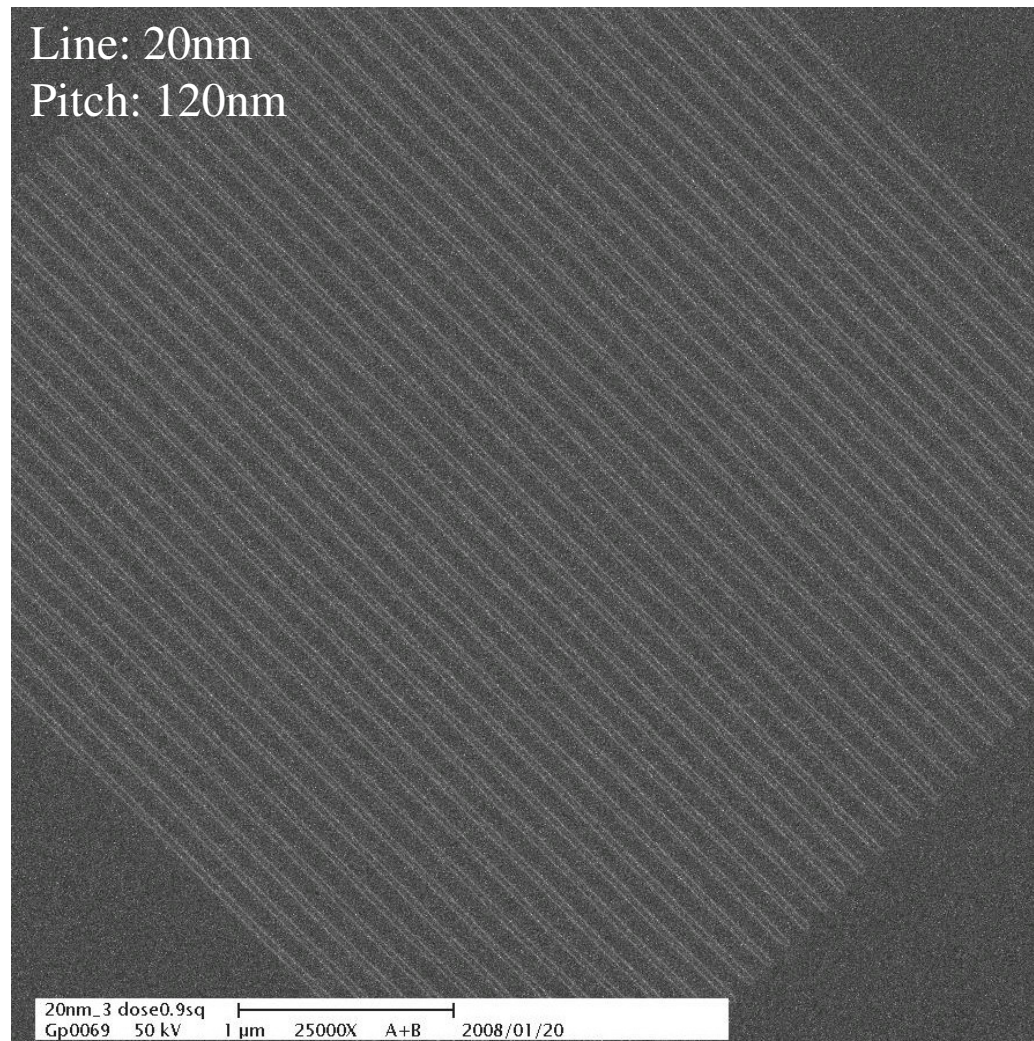




# Pattern “nano van der spiegel”

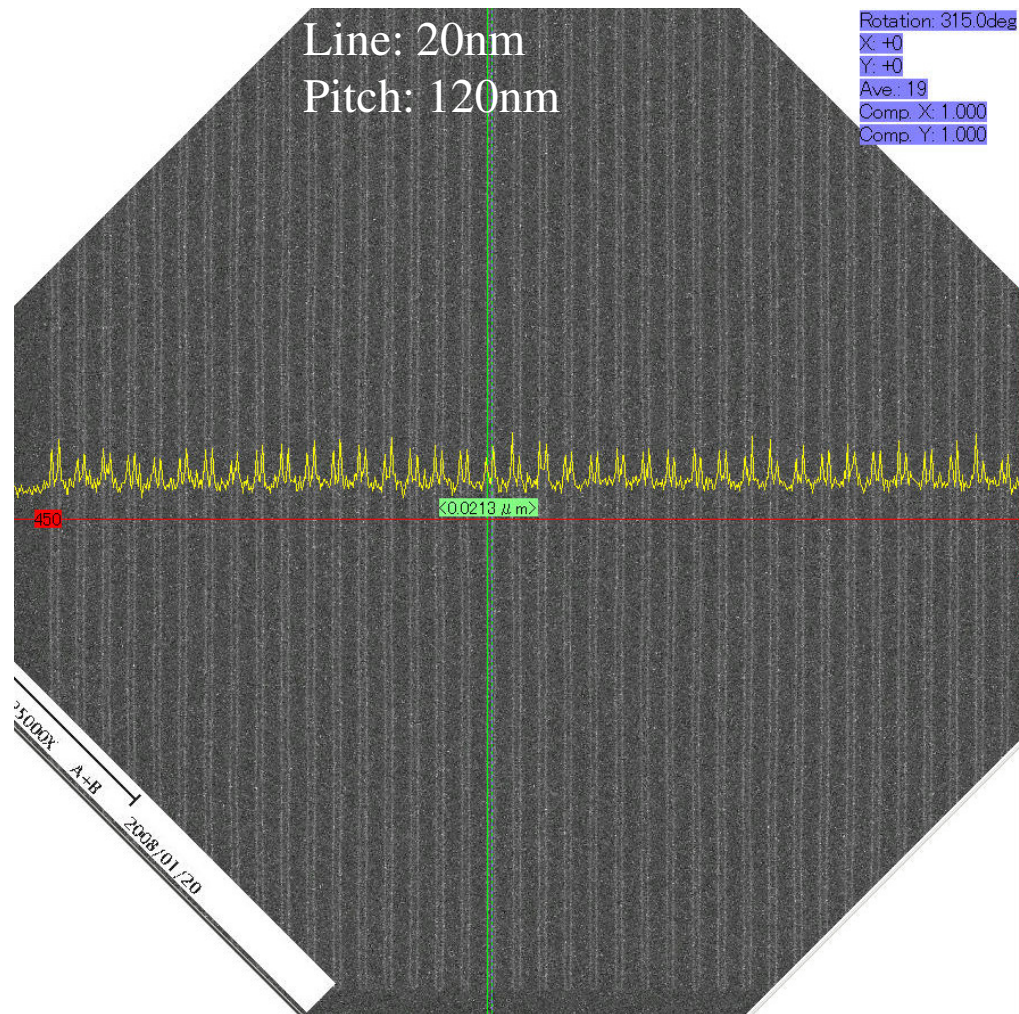
---

- Pattern.2. (Diagonal line) -



# Pattern “nano van der spiegel”

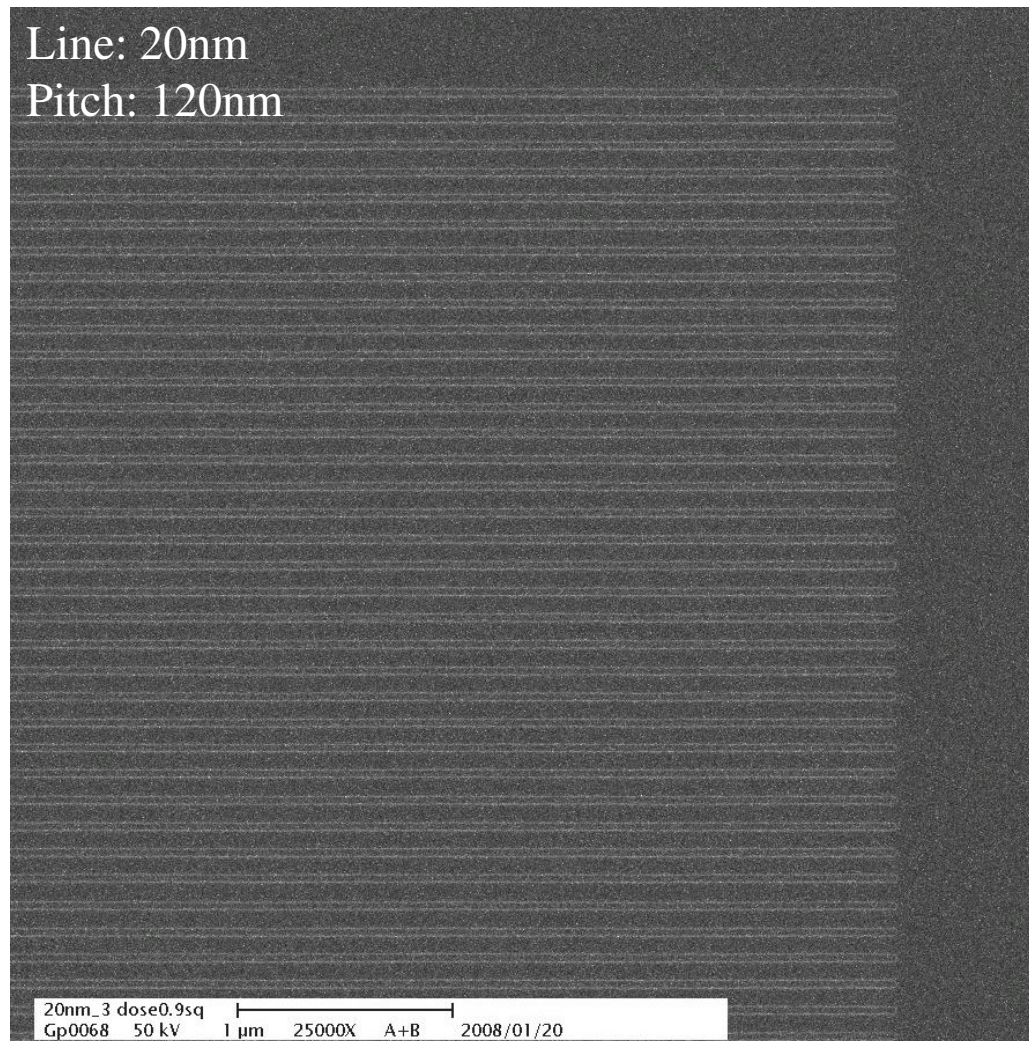
- Pattern.2. (Diagonal line) -



# Pattern “nano van der spiegel”

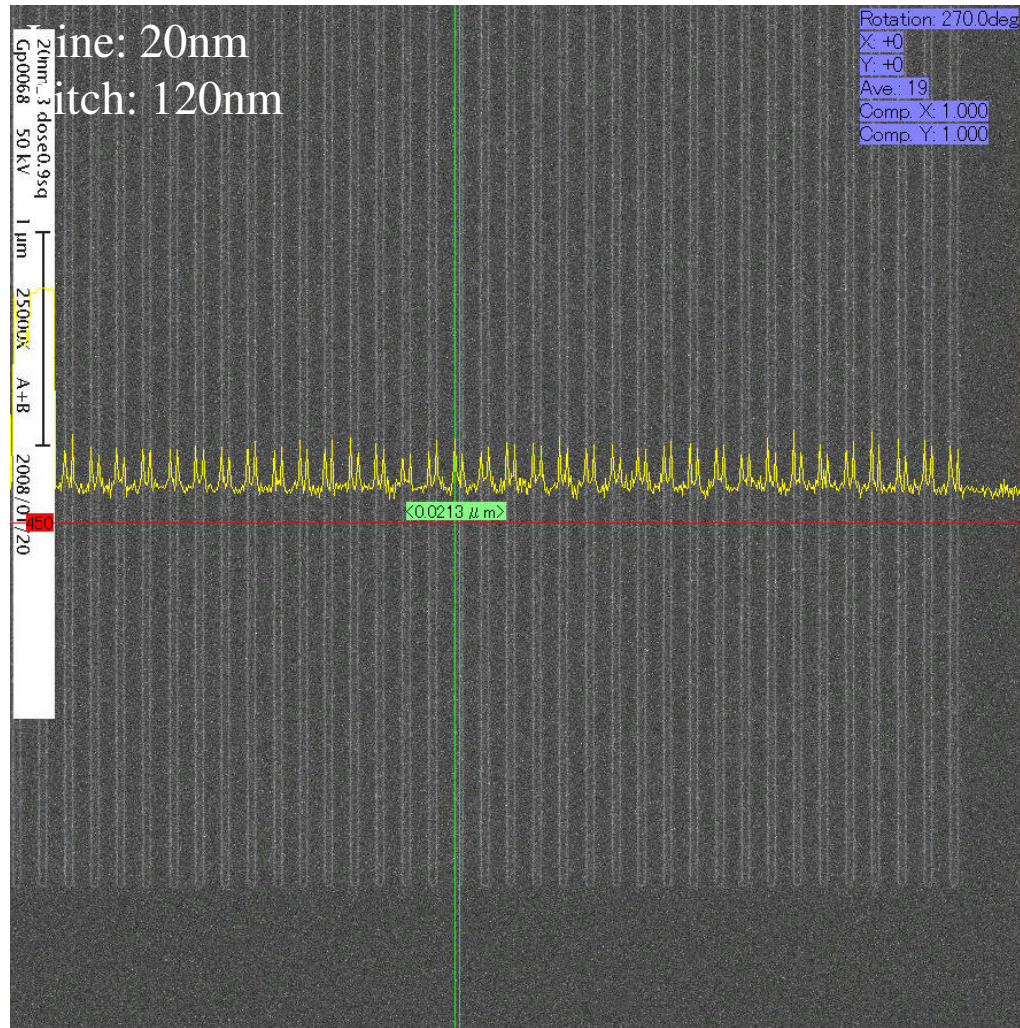
---

- Pattern.2. (Horizontal line) -



# Pattern “nano van der spiegel”

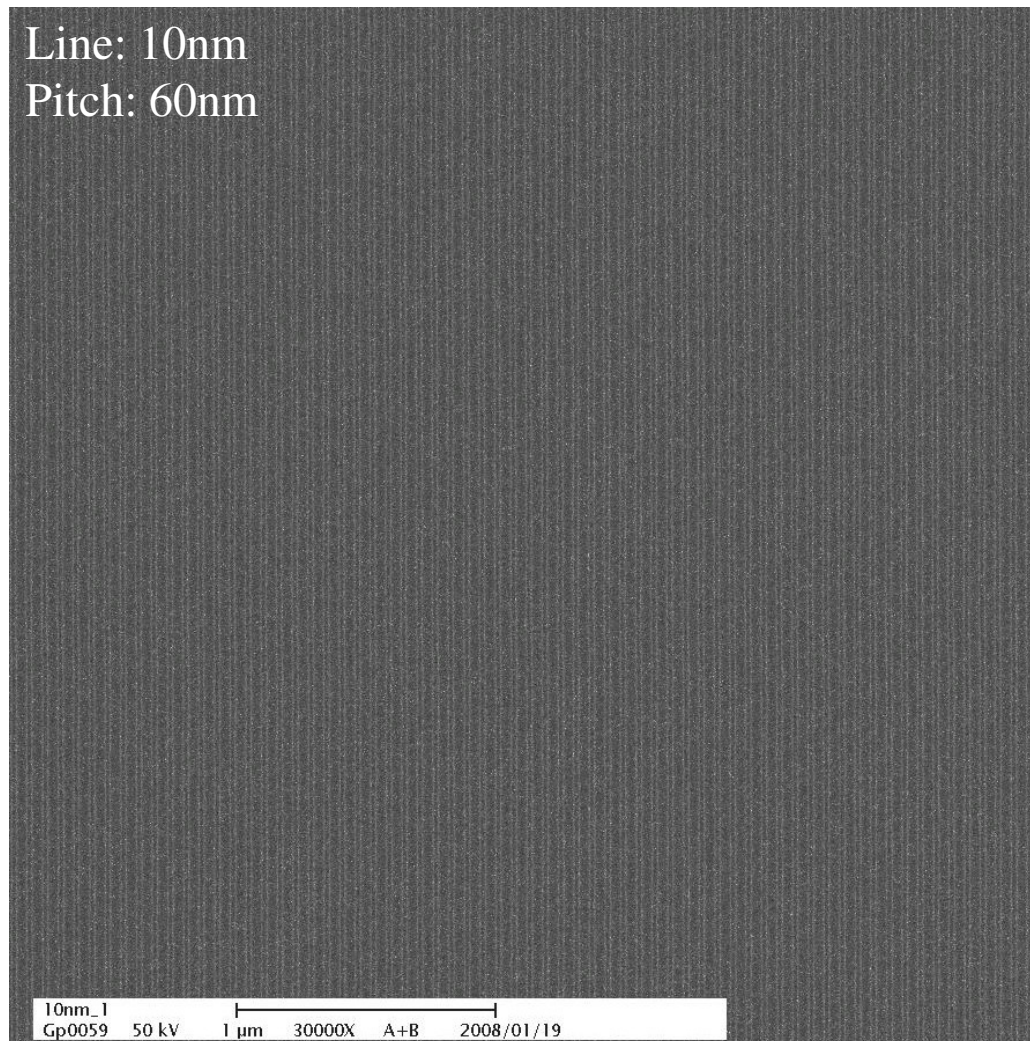
- Pattern.2. (Horizontal line) -



# Pattern “nano van der spiegel”

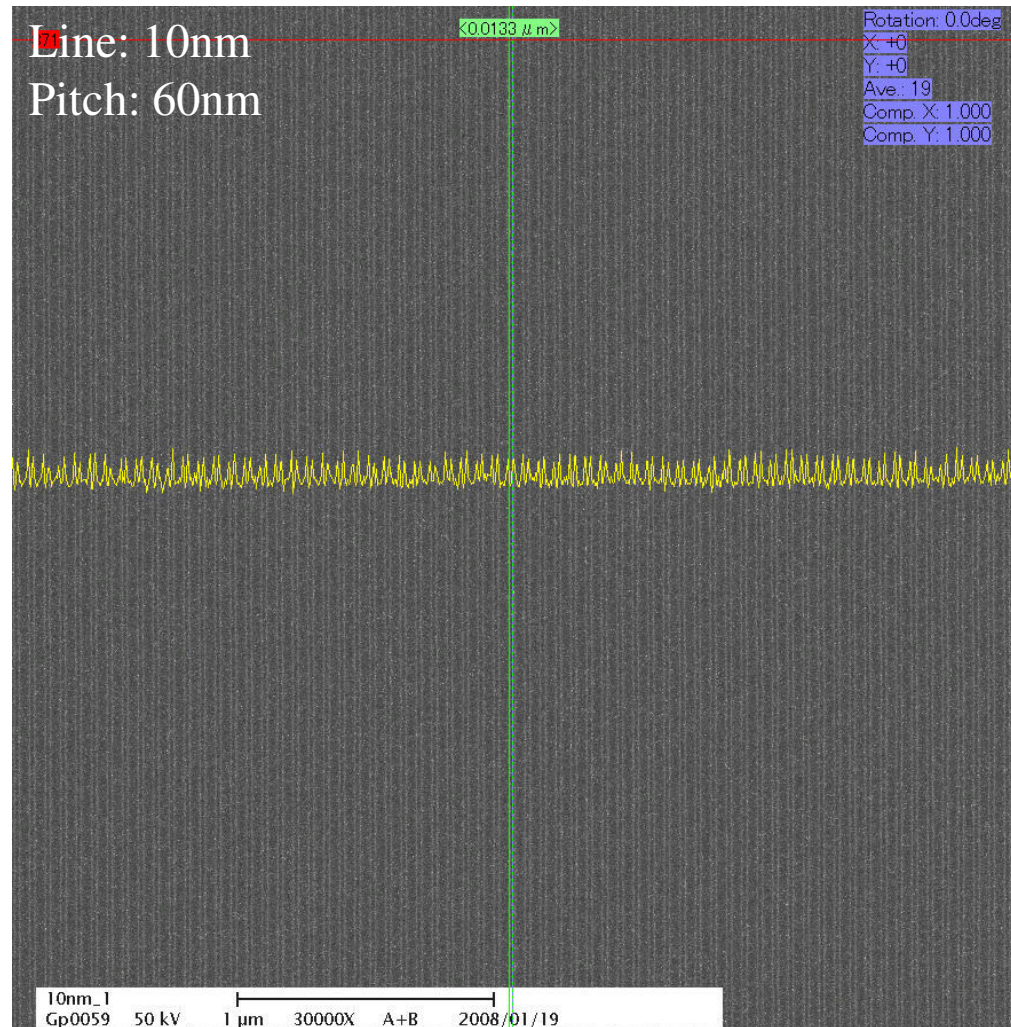
---

- Pattern.3. (Vertical line) -



# Pattern “nano van der spiegel”

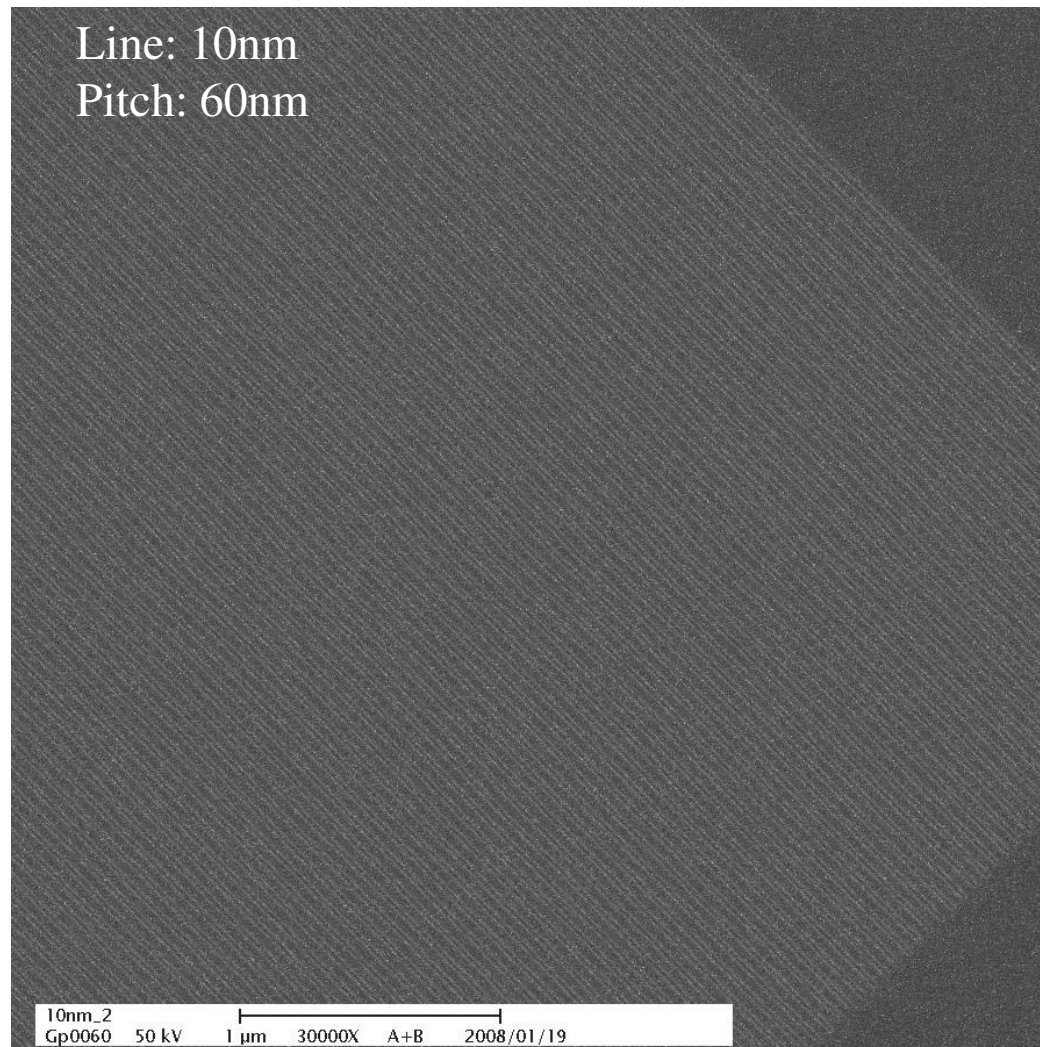
- Pattern.3. (Vertical line) -



# Pattern “nano van der spiegel”

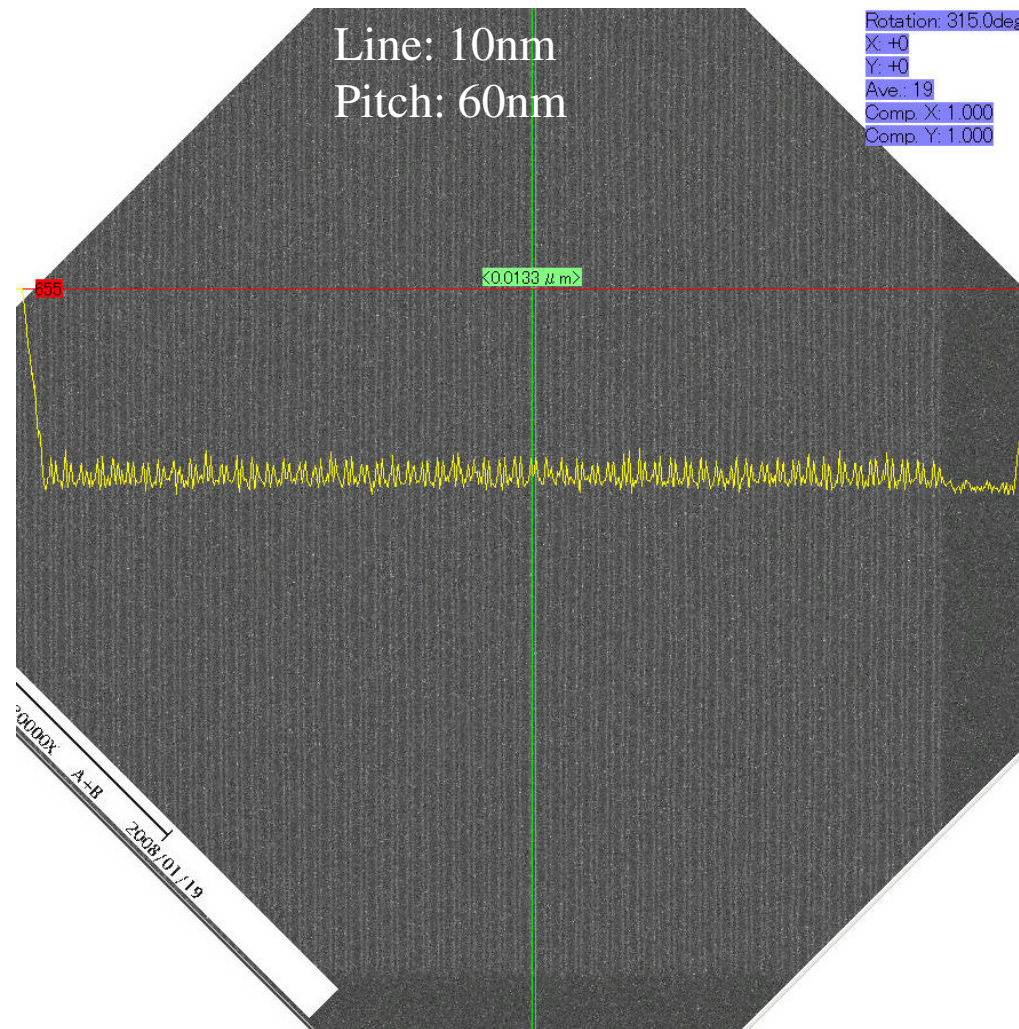
---

- Pattern.3. (Diagonal line) -



# Pattern “nano van der spiegel”

- Pattern.3. (Diagonal line) -

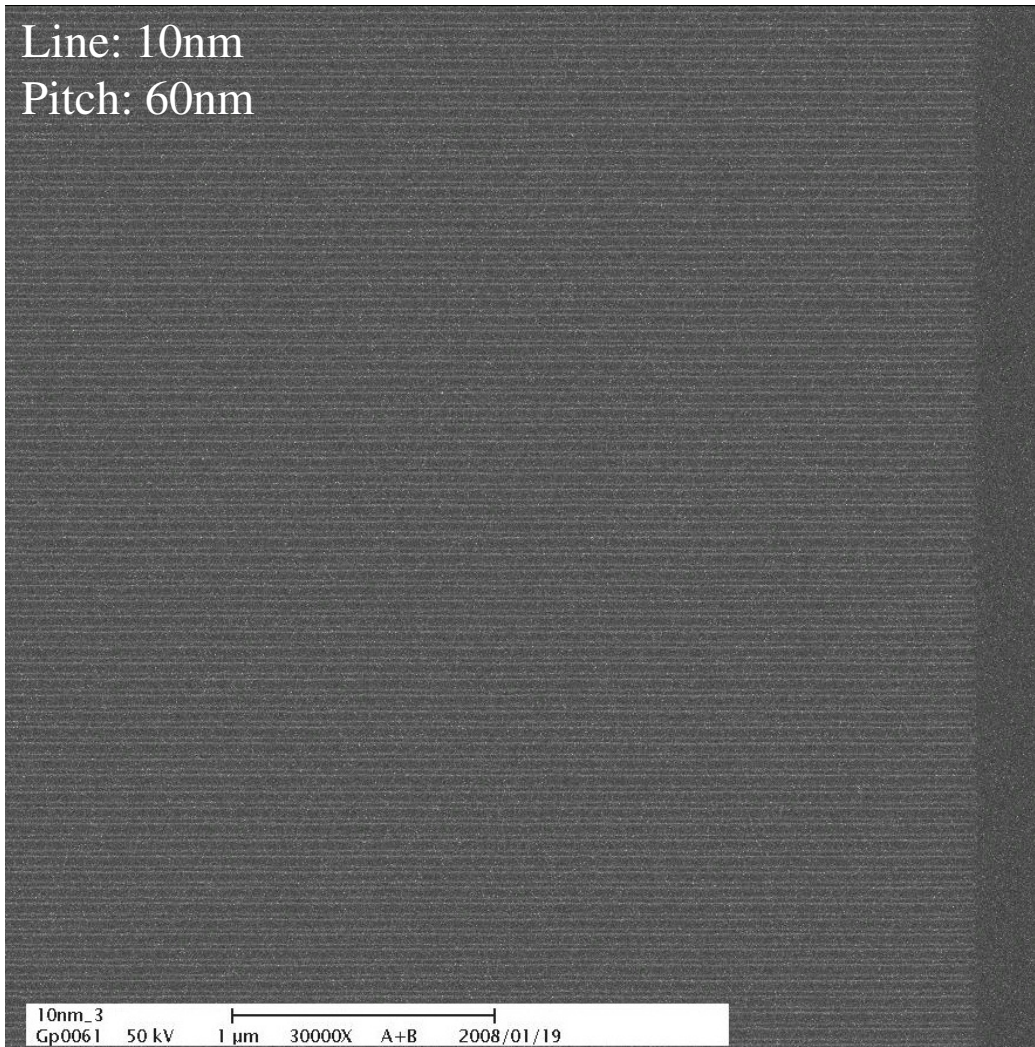




# Pattern “nano van der spiegel”

---

- Pattern.3. (Horizontal line) -



# Pattern “nano van der spiegel”

- Pattern.3. (Horizontal line) -

