

A: 塩化金酸 = $0.12 \text{ mmol} / 50 \text{ mL} = 0.0024 \text{ M}$
 7I/酸 = $0.34 \text{ mmol} / 10 \text{ mL} = 0.034 \text{ M}$

B: 塩 ~ = $0.10 \text{ mmol} / 50 \text{ mL} = 0.0020 \text{ M}$
 7I ~ = $0.34 \text{ mmol} / 10 \text{ mL} = 0.034 \text{ M}$

C: 塩 ~ = $0.04 \text{ mmol} / 50 \text{ mL} = 0.0008 \text{ M}$
 7I ~ = $0.34 \text{ mmol} / 10 \text{ mL} = 0.034 \text{ M}$

Startup

redo 2020

2 new > 7 has

100nm

試薬: $10 = \frac{3\text{mL}}{x}$ $x = 0.3\text{mL} \rightarrow 300\mu\text{L}$

水: $3\text{mL} - 0.3\text{mL} = 2.7\text{mL} \rightarrow 2700\mu\text{L}$

試薬Aは γ / 粒子の大きさが大きすぎると分散されなかった

A: 黄色 \rightarrow [$\gamma \sim \lambda$] \rightarrow 無色 $\xrightarrow{\text{分散}}$ 紫 \rightarrow 黒色
 \rightarrow 無色 + 沈殿

B: 黄色 \rightarrow [$\gamma \sim \lambda$] \rightarrow 無色 $\xrightarrow{\text{分散}}$ 紫 \rightarrow 淡紫

C: 上同

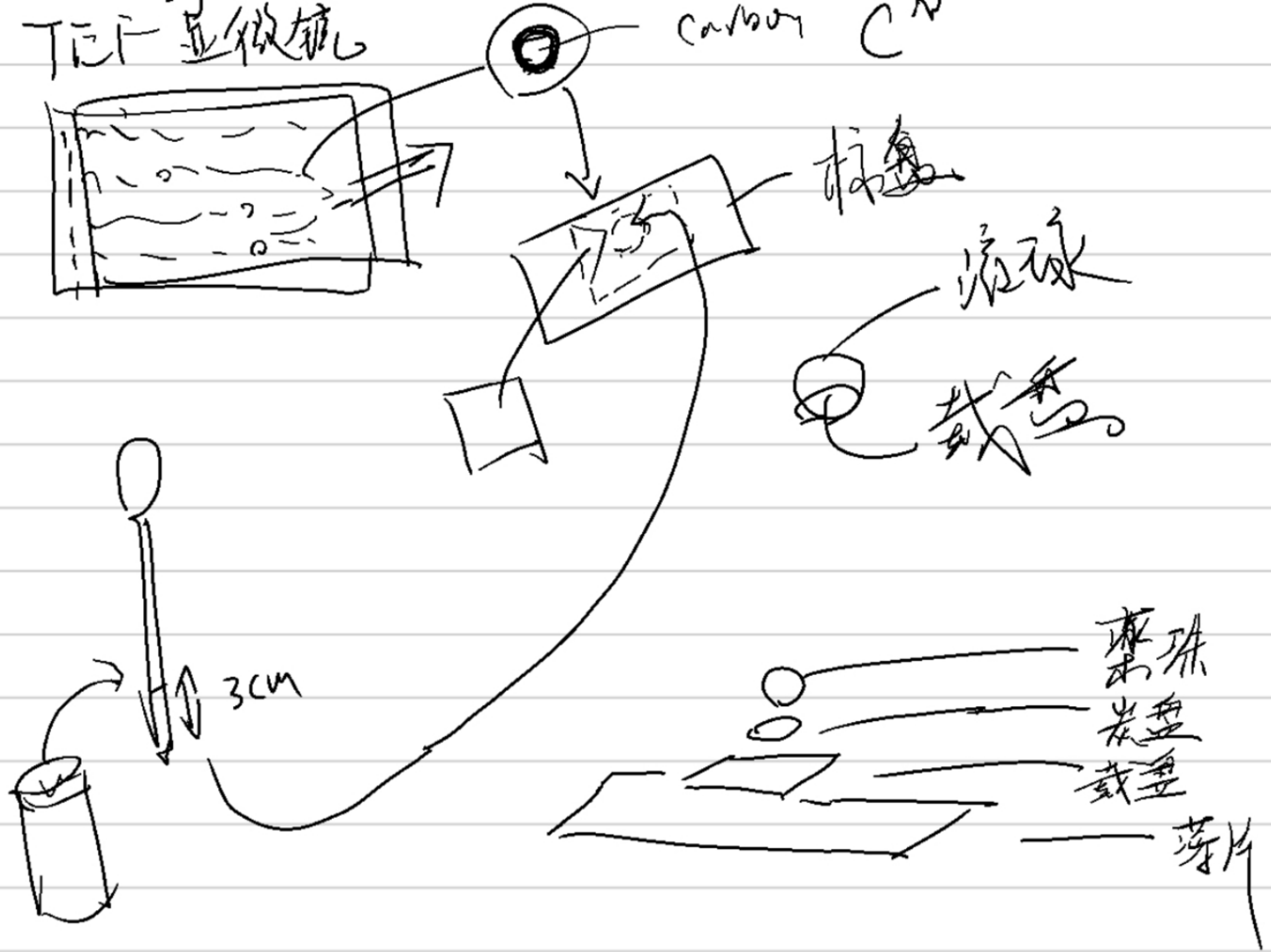
D: 塩 \sim : 0.0024M
 $\gamma \sim$: $0.25\text{mmol} / 10\text{mL} = 0.025\text{M}$

E: 塩 \sim : 0.0020M
 $\gamma \sim$: 0.025M

F: 塩 \sim : 0.0008M
 $\gamma \sim$: 0.025M

TEM 显微镜

Carbon CN



G: 液: 0.0024 M
 4: ~ 0.17 mmol / 10 mL = 0.017 M

H: 液: 0.0020
 4: ~ 0.017 M

I: 液: 0.0008 M
 4: ~ 0.017 M

反射光の強さ

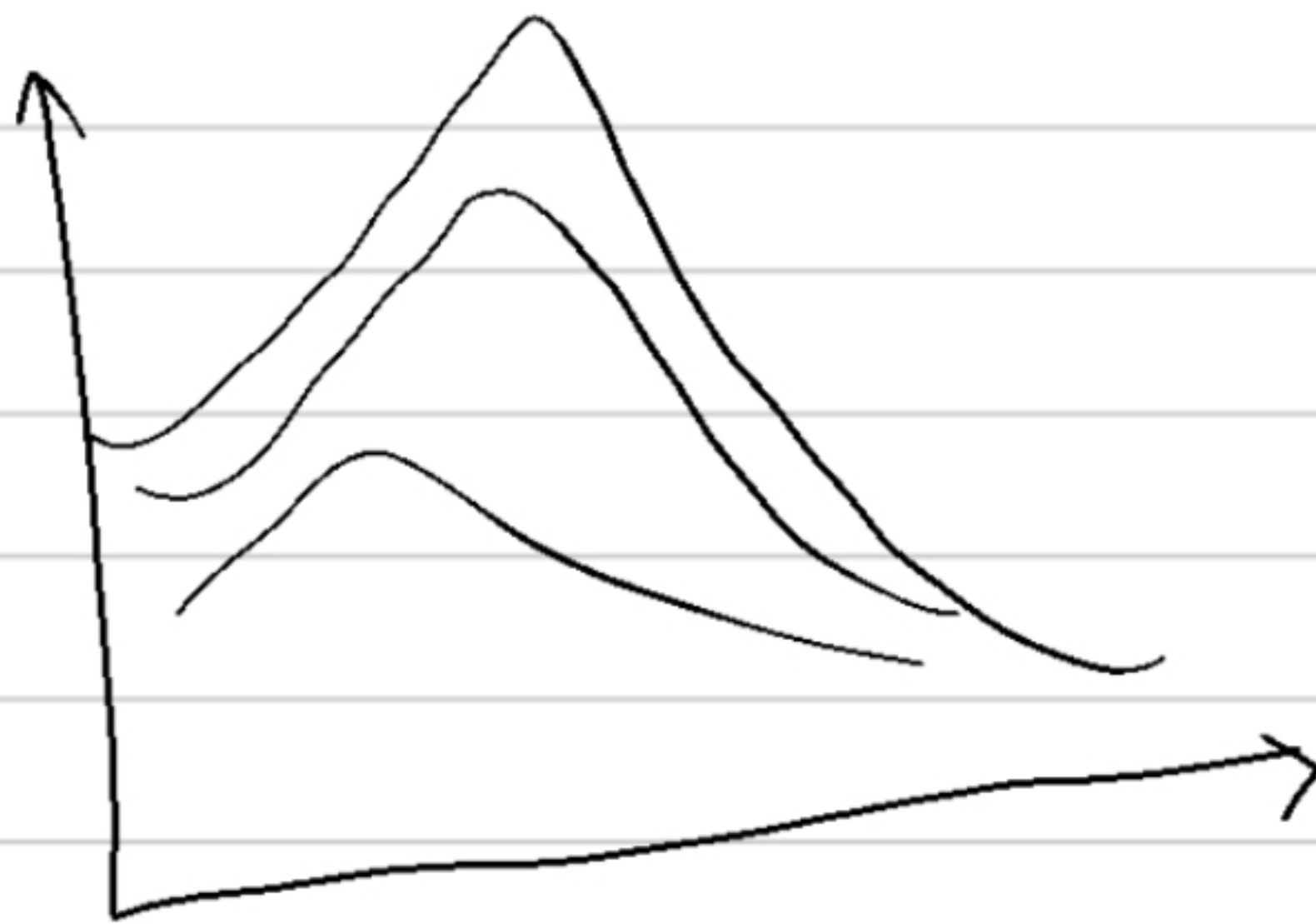
$$A = \epsilon C L$$

理想 10 nm

直径

10 nm SPR における 吸収率 0.6

0.6 =



参考資料: ~~URL~~ URL

4 / 27 (本)

印刷 17時 手渡し

直径 10 nm \rightarrow 球体積

10倍稀释 Abs = 0.6 \rightarrow $0.6 \times 10 =$ 元の Abs

HAnCl₄ · 4H₂O (411.85) 50mg \rightarrow Auの物質量

Au + 1粒子溶液 ... 100ml

$$V = \frac{4}{3} \pi r^3 \approx 523 \text{ nm}^3 \rightarrow 6.23 \times 10^{-19} \text{ mL}$$

197 g/mol

$$50 \text{ mg} \rightarrow 0.05 \text{ g}$$

$$0.05 \text{ g} / (197 \text{ g/mol}) = 0.00025 \text{ mol}$$

$$\rightarrow 0.25 \text{ mmol}$$

$$0.25 \text{ mmol} / (6.23 \times 10^{-19} \text{ mL}) = 4.01 \times 10^{17} \text{ M}$$

Abs 6

$$6 = 4.01 \times 10^{17} \times \epsilon \times l$$

$$\epsilon = 1500$$

$$5.23 \text{ nm}^3 \rightarrow 5.23 \times 10^{-19} \frac{\text{mL}}{\text{cm}^3}$$

$$19.3 \text{ ~~g~~ g/cm}^3 \times 5.23 \times 10^{-19} \text{ cm}^3 \\ = 1.00939 \times 10^{-17} \text{ g}$$

$$V = 523.6 \mu\text{m} / 10^{21} \text{ mL} = 5.236 \times 10^{-22} \text{ mL}$$

$$197 \text{ g/mol}$$

$$50 \text{ mg} \rightarrow 0.05 \text{ g}$$

$$0.05 \text{ g} / (441.85 \text{ g/mol})$$

$$\approx 0.12 \text{ mmol} = 1.2 \times 10^{-4} \text{ mol}$$

$$5.236 \times 10^{-22} \text{ mL} \times (19.3 \text{ g/cm}^3)$$

$$= 1.0094 \times 10^{-17} \text{ g}$$

$$1.0094 \times 10^{-17} \text{ g} / (197 \text{ g/mol}) \approx 5.124 \times 10^{-20} \text{ mol}$$

$$\frac{1.2 \times 10^{-4} \text{ mol}}{5.124 \times 10^{-20} \text{ mol}} = 2 \times 10^{15}$$

$$\frac{2 \times 10^{15}}{N_A} = 3 \times 10^{-9} \text{ mol}$$

$$3 \times 10^{-9} \text{ mol} / 0.06 \text{ L} = 5 \times 10^{-8} \text{ M}$$

$$d = 1 \text{ cm} \times 5 \times 10^{-8} \times \epsilon$$

$$\underline{\underline{\epsilon = 1.2 \times 10^8}}$$

