

2단계 계획.

4.7 동영상. { 정역역, Model Avg. Image project 소개.

5.14 image processing Matlab demo

5.21 image processing Advanced. FIT, Machine learning, Filter

5.28 phonon

6.4 phonon → spectroscopy

• 과제 #4. 용리기 (이벤트) → 2주후기. (5.21)

{ 정역역, Model, Avg. 증명, BCC E → K, Cij

{ 총 10
과제 20 (4x5) 개.
공과 30
기말 40

프로젝트 (과제 #5)
4점 ~ 14점.

• 프로젝트 (과제 #5) → 6/16일까지 email 제출
- phonon 손계산 (6/11) 시험

• (*) noise cancellation

• (*) image fiber separation

• (*) random walk → 프로그램 추가

• (*)

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 → FIT Cement agglomeration.

• 2D → psd (SFT, SAP)

3D
• fiber separation & orientation

3D
• 공극 separation & orientation.

5/14

홍영상님의 3개 과제 예경

HW#4. 2st. 6pm. (total 4pt)

HW#5. $\left\{ \begin{array}{l} \text{image} \\ \text{phonon 현미경.} \end{array} \right.$ (total 4pt)

HS.

K. F. Fin G

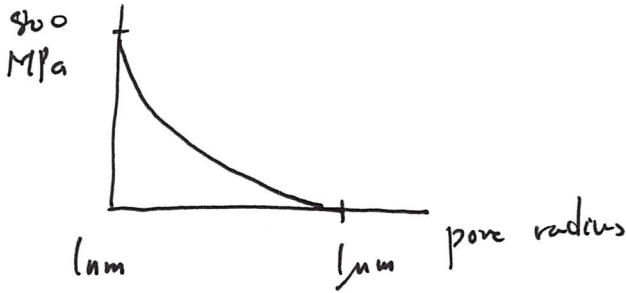
홍영상

①

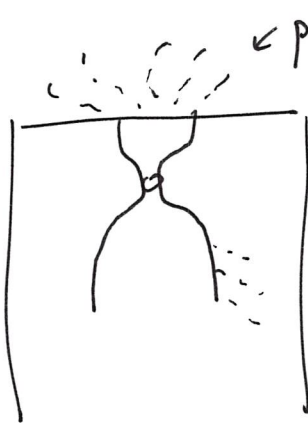
* MIP assumption. (Washburn eq.)

$$P = - \frac{2\gamma \cos \theta}{r} \quad ; \quad \begin{array}{l} \gamma : \text{surface tension of mercury} \\ r : \text{Pore radius} \end{array}$$

pore pressure

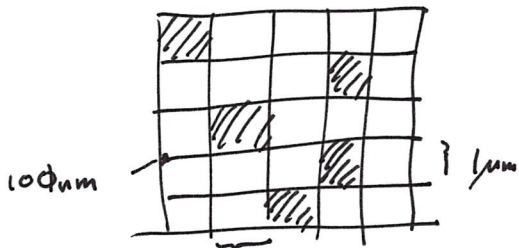


5mm



Ink-bottleneck effect

nano-pore breaking under high pressure.



$$\text{porosity} = \frac{1}{5} = 20\%$$

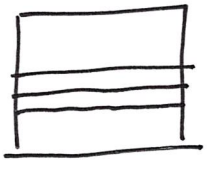
Can nano-pore exceed 20% ?

$$\text{If } 10\% \text{ filled, Total porosity} = \frac{1}{5} + \frac{4}{5} \times \frac{1}{5} = \frac{14}{25} \% \text{ only}$$

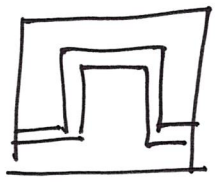
①

* Tortuosity

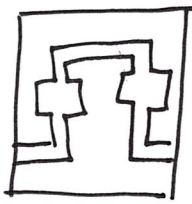
Model 1.



Model 2



Model 3



Total porosity

$\phi_1 = \phi_2 < \phi_3$

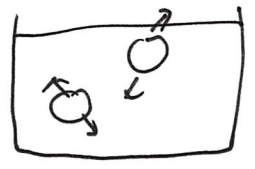
tortuosity

$\tau_1 < \tau_2 < \tau_3$

directivity
(diffusivity)

$D_1 < D_2 < D_3$

* Dynamic Light Scattering.
(Laser)



Brownian motion



* 24 비트

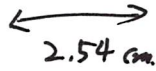
$$2^{24} = 16777216$$

1660 만가지 색 표현 가능.

8 비트

$$2^8 = 256 \text{ 가지 색 표현 가능.}$$

DPI = dots per inch.



120개 점. = 하나의 점당 1600만가지 색 표현 가능.

* im2bw → RGB → bw.

1 → white ⇒ connectivity.
 0 → black.

* bwareaopen (bw, 400)

↓
 400개 이하의 연결된 픽셀을 모두 제거 (= 1 → 0)

bwconncomp (bw, 4)

