Supporting Material for

Structural color coatings for ceramics and glass surface by silica opal films

Hiroshi Fudouzi [1,†]

[1]Affiliation National Institute for Materials Science

[1] Address 1–2–1 Sengen, Tsukuba, Ibaraki 305–0047, Japan

† Corresponding author: Hiroshi Fudouzi; E-mail: FUDOUZI.Hiroshi@nims.go.jp

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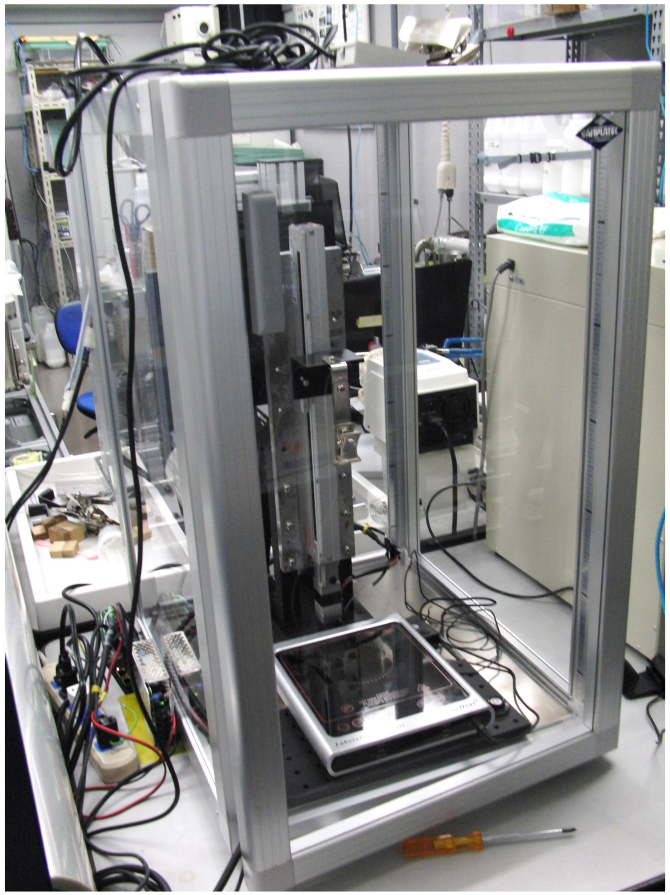
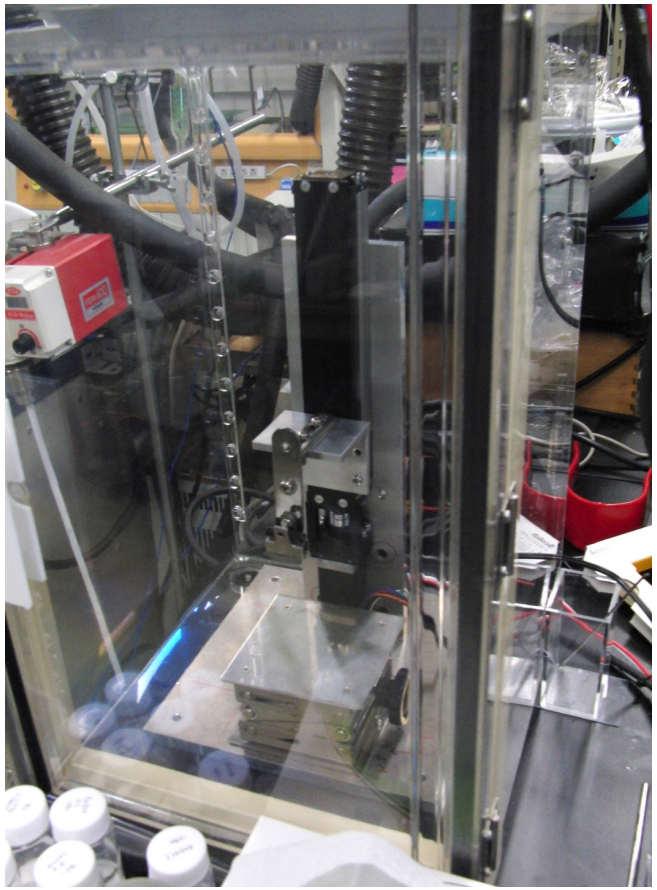
Figure S1

Homemade dipping coaters (Actuator with stepping motor)



Actuator / Control Circuit #1
EZ Limo EASM2NXF030-ARMK
ORIENTAL MOTOR CO., LTD.
Min. Speed: 0.3μm/s, Stroke: 300mm



Actuator / Control Circuit #2
SKR2001A-0130（THK）
AZM26AK-RS（Oriental Motor）
Min. Speed: 0.1μm/s, Stroke: 130mm

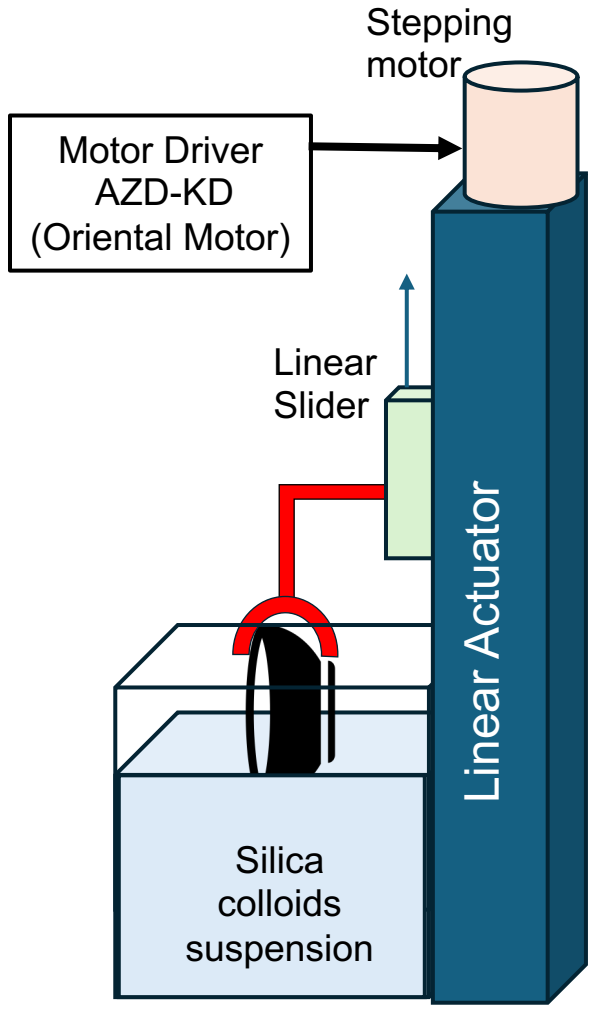
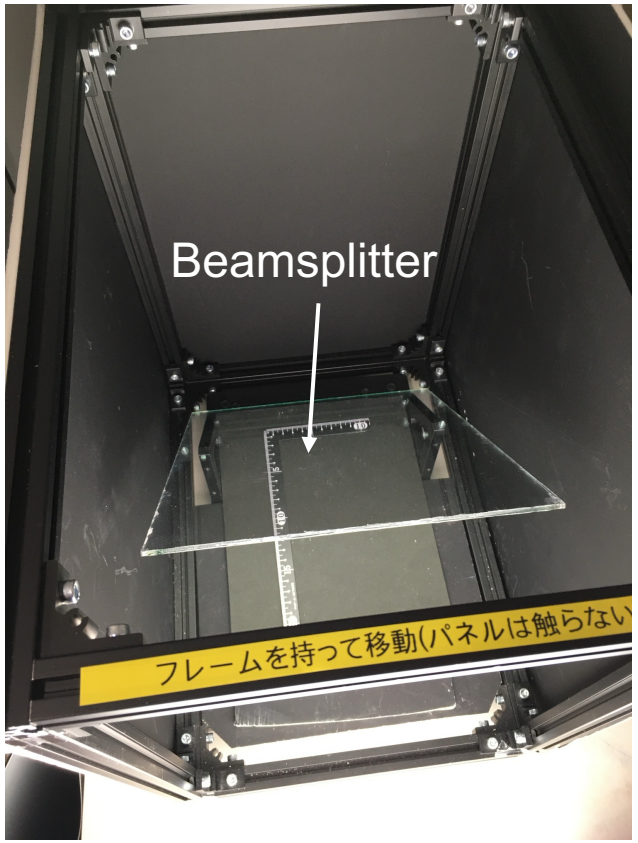
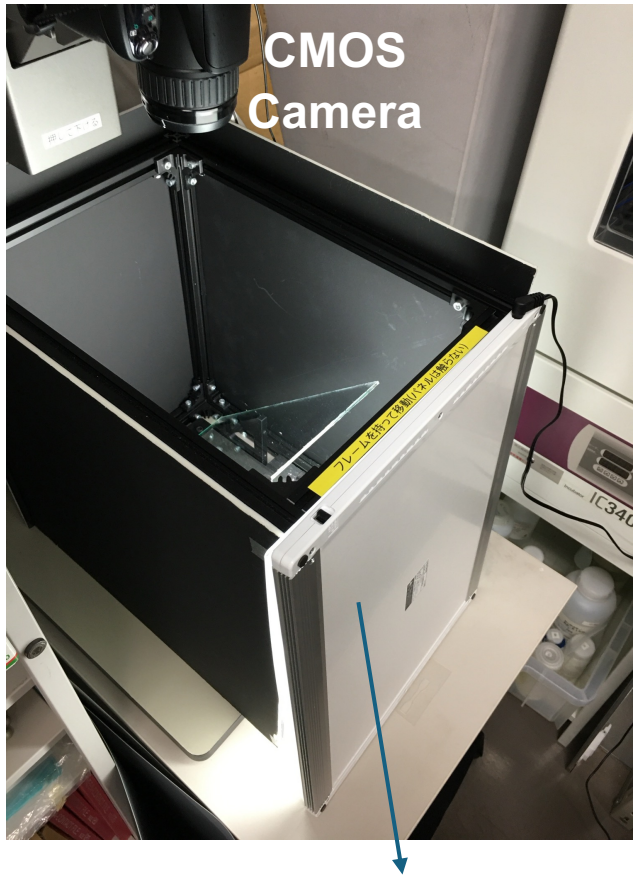


Figure S2

Homemade coaxial illumination camera system





Coaxial incident illumination

45° angle of incidence

Flat white LED light
a flat high brightness LED white light
(Color temperature: 5000 K, Shinkosha Co.)

Standard beamsplitter plate
50R/50T at 45° 254mm x 356mm
Edmund Optics Japan

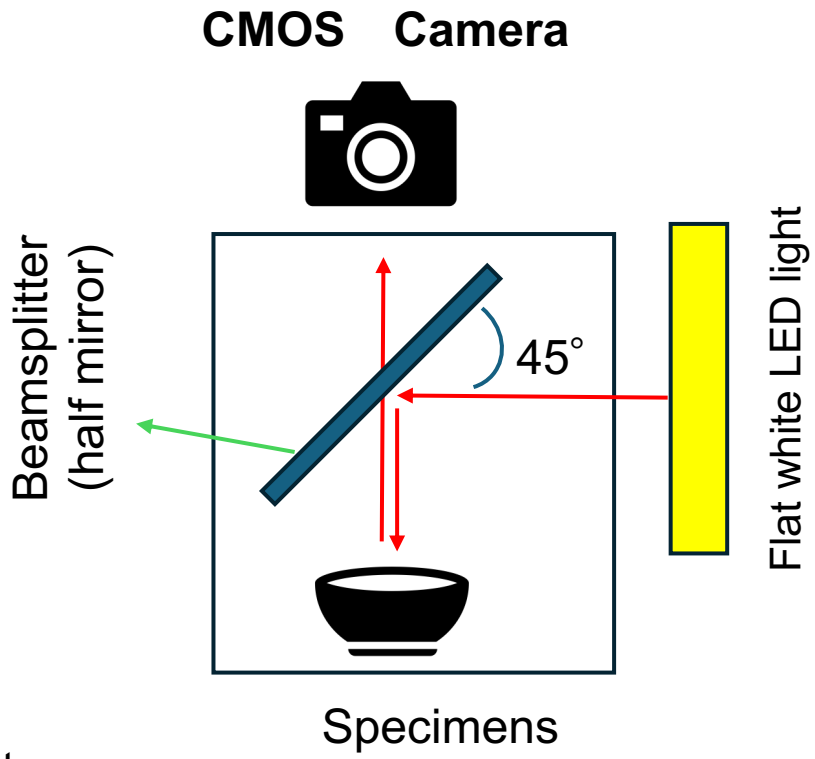
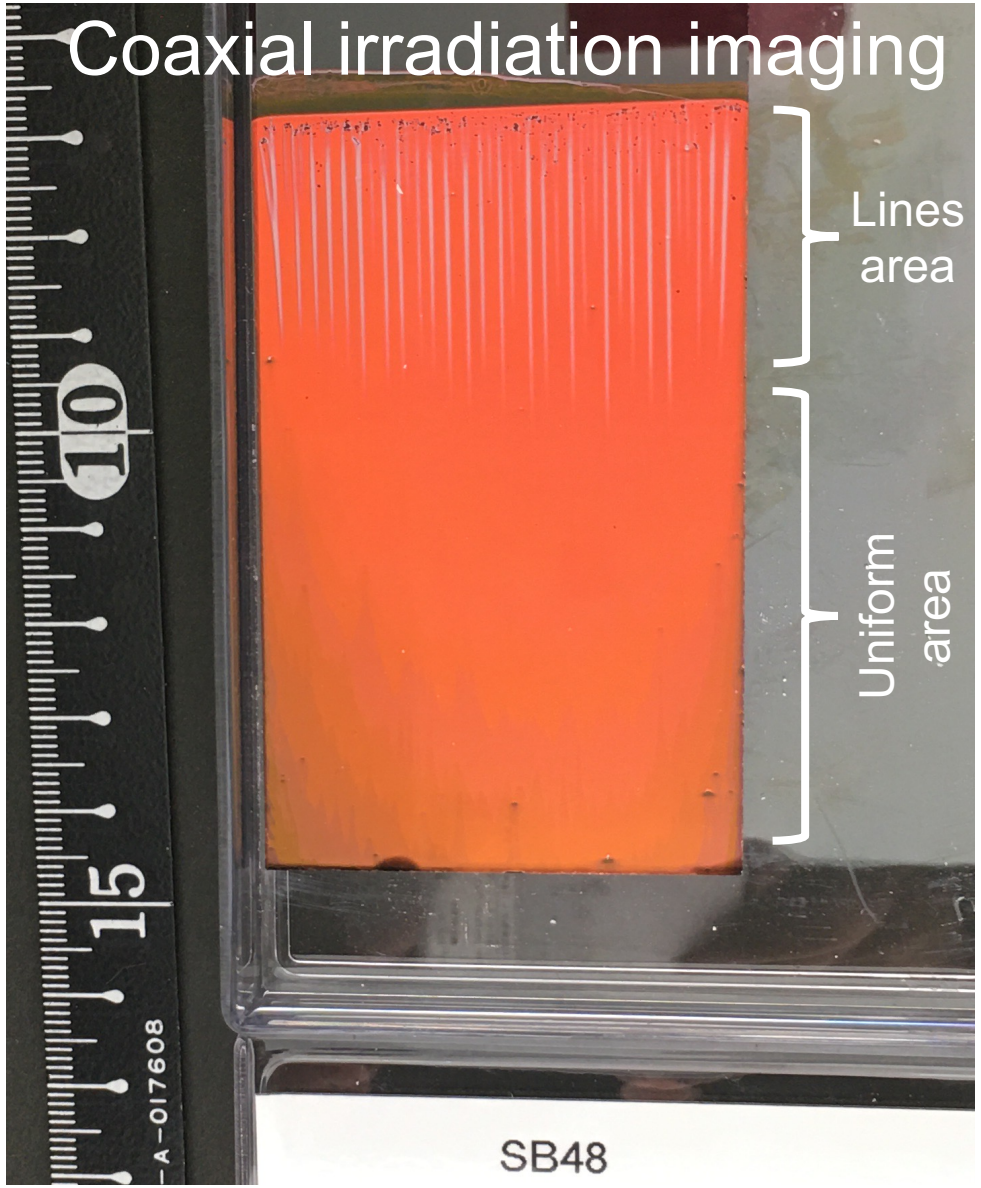
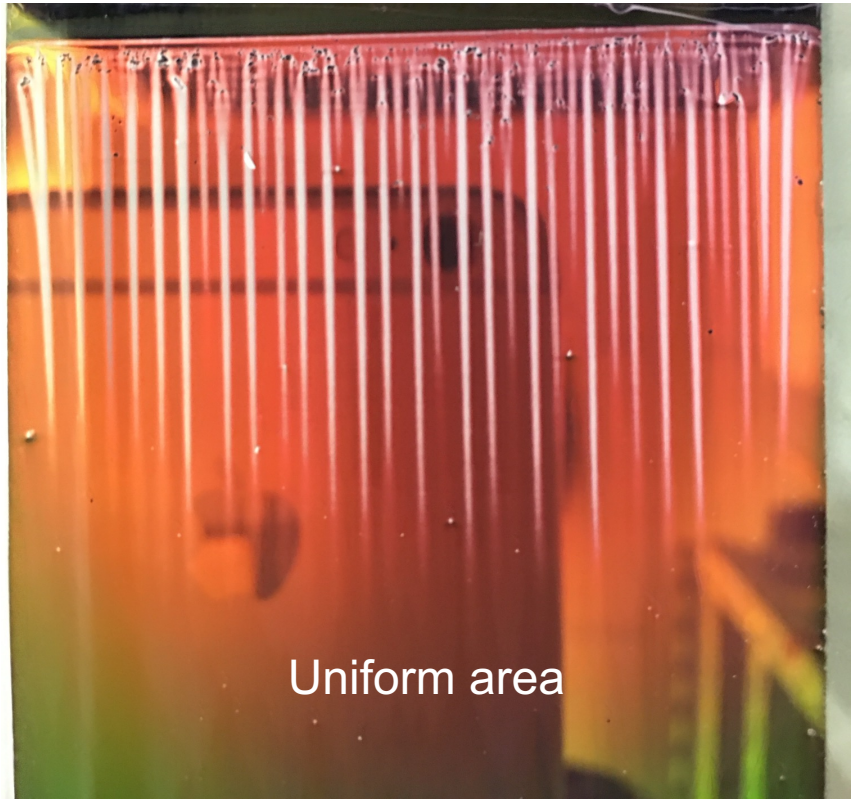


Figure S3



Normal photo by *i* phone camera



During the initial dip coating process, unintended vertical direction silica colloidal assembly lines form. The origin and forming mechanism is not clear. In the experiments, we selectively used uniform area.