Wire-Wound Rod Coatings onto Chemically Patterned Substrates

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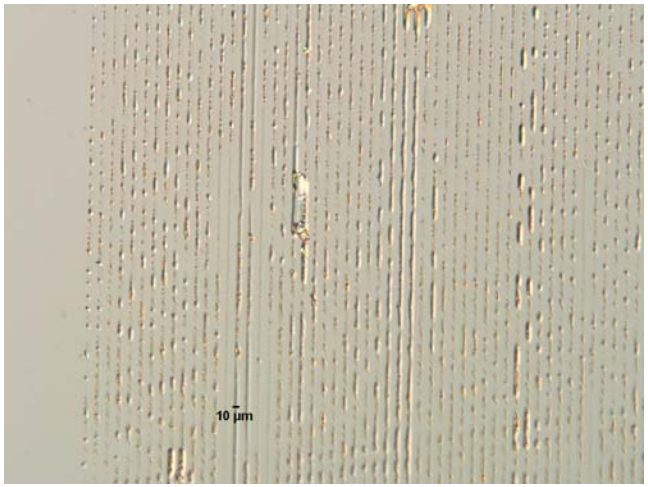
RESEARCH GOALS

- Explore the microstructure of coatings deposited on chemically patterned silicon surfaces
- Study the mechanism of liquid redistribution onto chemical patterns and develop a method of quickly producing patterned coatings

RESULTS

- Si substrates were prepared with patterns of hydrophilic stripes and hydrophobic spacings and then silica nanoparticle dispersions were coated on top
- Morphology depended on pattern size and coating thickness (Figure 1)

(a)



(b)

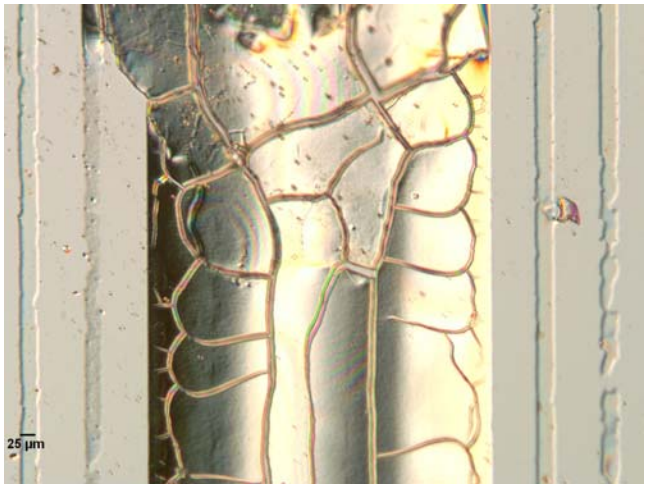


Fig.1. (a) Break up of liquid into drops over the hydrophilic stripes (b) Bridging of liquid between hydrophilic stripes.