

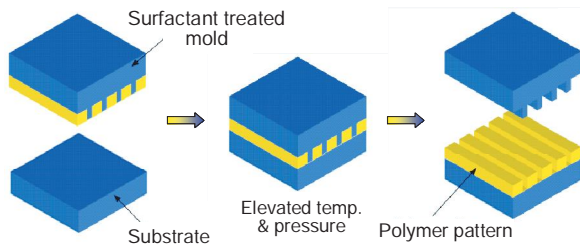


Nanoimprinting 3-D polymeric nanostructures and nanocomposite photonic devices

Yen. P. Kong, Huagen Peng, and Albert F. Yee

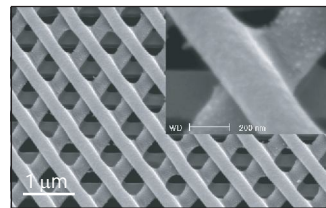
Department of Chemical Engineering and Materials Science, University of California, Irvine

1 Reversal imprinting

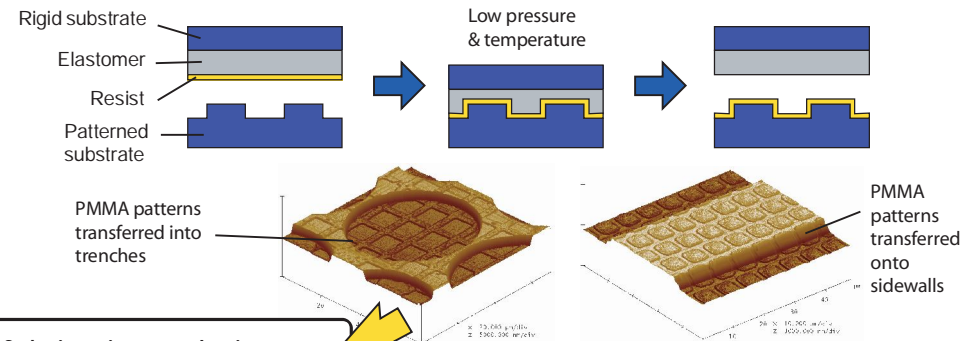


L. R. Bao, X. Cheng, X. D. Huang, L. J. Guo, S. W. Pang, and A. F. Yee, *JVST B*, 2881 (2002)

Layer by layer log-pile structure

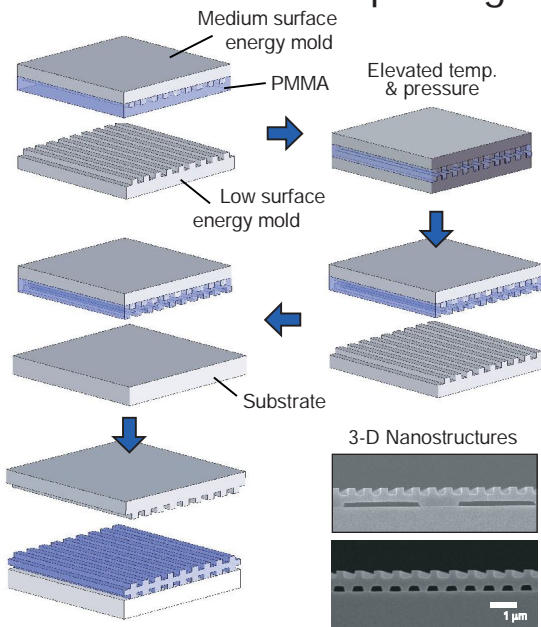


3 Soft inkpad 3-D patterning



L. Tan, Y. P. Kong, L.-R. Bao, X. D. Huang, L. J. Guo, S. W. Pang, and A. F. Yee, *JVST B*, 20, 2742 (2003)

2 Dual-mold imprinting

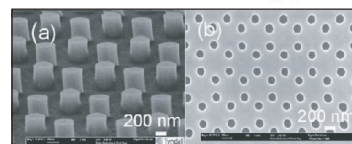


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Potential applications of nanofabrication techniques

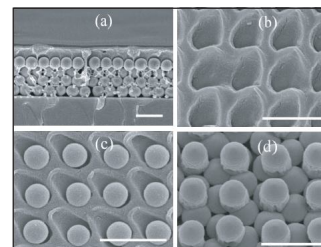
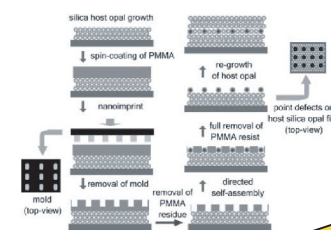
- Photonic crystals
- Flexible polymeric lasers
- Ceramic nanostructures
- Metamaterial devices
- Nanowire catalyst patterning
- Electroless plating templates
- Biomolecule patterning

Nanoimprinted quantum dot composite photonic crystal



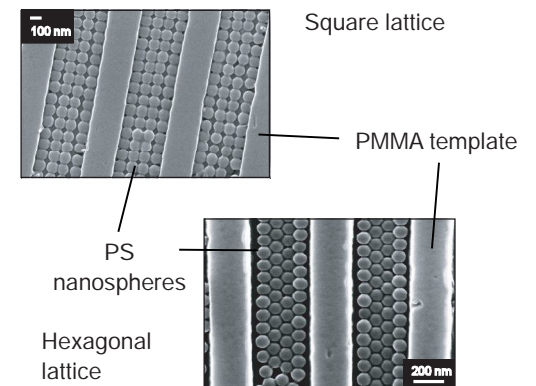
V. Reboud, et al., *Appl. Phys. Lett.* 90 (1) (2007)

Point defects into 3-D colloidal crystals



Q. F. Yan, A. Chen, S. J. Chua and X. S. Zhao, *Adv. Mater.* 17 (23), 2849 (2005)

4 Template assisted self assembly



Y. P. Kong and A. F. Yee, unpublished results