

## **Lin Pang**

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### **Professional Activities and Skills:**

- (1) Development of holographic lithography for nanostructure fabrication, form birefringence device and photonic crystals
- (2) Enriched experience with dry-etching system in RIE (Reactive ion etching) and CAIBE (Chemically assisted ion beam etching) and electron beam writing using JEOL Scanning Electron Microscope.
- (3) Strong experimental and theoretical training in synthesizing organic and inorganic-organic material and technical processing for fabrication and duplication of microoptical elements
- (4) Expertise in mechanism of photoresist, in particularly, chemically amplified photoresist and processing of lithography
- (5) Good programming experience in C, Matlab, Fortran and Database Management
- (6) Good knowledge in Chemistry, Inorganic Chemistry, High Polymer Chemistry, as well as Optics and Physics

### **Education:**

- PhD in Optics, June 1998, Information Optics Research Center,  
Sichuan University, Chengdu, China  
Thesis “ Optical recording materials and Fabrication  
Technologies for Microoptical Elements”  
Advisor: Prof. L-R Guo
- M.S. in Physics, June 1990, Dept. of Physics, Lanzhou University,  
Lanzhou, China.

Major in Topology in physics

B.S. in Physics, June 1987, Lanzhou University, Lanzhou, China.  
Major in Basic theory on free-electron Laser

Experiences:

3/2001-present,  
Research scientist, (supervisor: Prof. Y. Fainman) Dept. of Electrical and Computer Engineering, UCSD. Fabrication of nanostructure devices, 2-D photonic crystals, development of holographic lithography, dry-etching of RIE and CAIBE, E-beam writing.

12/1998-2/2001,  
Instructor and Teaching Assistant, , Dept. of Precision Instruments, Tsinghua University, China, Teaching and research in the area of synthesis of inorganic-organic composite recording materials and its application in microstructure fabrication.

9/1995-11/1998  
Graduate research, , (supervisor: Prof. L-R Guo) Information Optics Research Center, Sichuan University, China. Composing holographic recording materials (Silver Halide Sensitized Gelatin, Relief Dichromated Gelatin (DCG), sol-gel) and fabrication and replication of microoptical devices.

7/1990-8/1995  
Teaching Assistant, , Lanzhou Railway Institute, China. Teaching of general physics and database management system.

9/1987-6/1990  
Graduate research Assistant, (supervisor: Prof. M-L Ge) Lanzhou University, China. Thesis: 'Topological action for one-dimension antiferromagnet of Berry's phase'

### **Selected Publications:**

(1) L. Pang, L-R. Guo, W-P Zhang, K-T Wang, "New silver halide sensitized gelatin material: its processing", Chinese Journal of Lasers (in English), Vol.B7(1), 87-95,1998.

(2) L. Pang, W-P Zhang, L-R Guo, J-Y Tang, "Influence of rehalogenating bleaches on silver halide sensitized gelatin holograms", Chinese Journal of Lasers (in Chinese), Vol.A25(2), 187-190, 1998.

(3) L. Pang, Y-B Yan, G-F Jin, "Chemical cleaving method of relief microstructure formation on dichromated gelatin", Appl. Opt. Vol.39, 2184-2188, 2000.

(4) L. Pang, Y-B Yan, G-F Jin, M-X Wu, "Chemically Cleaving-etch method for fabricating microoptical elements in dichromated gelatin", Chinese Journal of Lasers, (in Chinese), Vol.28, 146-150, 2001.

(5) L. Pang, Y-B Yan, G-F Jin, "Characteristics of sol-gel dip-coating for fabricating microstructure", J.Chinese, Laser (in Chinese), Vol.28, 151-154, 2001.

(6) L. Pang, W. Nakagawa, and Y. Fainman, 'Fabrication of Optical Structures Using SU-8 photoresist and Chemically Assisted Ion Beam Etching', Optical Engineering, Vol. 42, No. 10, 2003.

(7) L. Pang, W. Nakagawa, and Y. Fainman, 'Fabrication of 2-D photonic crystals with controlled defects by use of multiple exposures and direct-write', Applied Optics, Vol. 42, No.24, 2003.

### **Presentations**

1. L. Pang, L-R Guo, B. Chen, "polymerized PMMA replication of microoptical elements", Proc. SPIE, Vol.3099, 115-122, 1997.

2. L. Pang, B. Chen, L-R Guo, "Polymerized-film replication of microoptical elements", Proc. SPIE, Vol.3175, 386-390, 1997.

4. L. Pang, H. Wei, B. Chen, L-R Guo, "Fabrication of sol-gel optical element with dichromated gelatin as photoresist", Invited Paper, Proc.SPIE,Vol.3557,5-7,1998.

5. L. Pang, Y-B Yan, G-F Jin, "Resistance of dichromated gelatin as photoresist", Proc. SPIE Vol. 3875, 230-238, 1999.

6. L. Pang, Y-B Yan, H-T Liu, G-F Jin, "Composite material for forming micro-structural elements", SPIE, 4231, 109-115, 2000.

7. L. Pang, D. Yi, Y-B Yan, G-F Jin, M-X Wu, "Shrinkage of spacing in fabricating sol-gel optical elements", Proc. SPIE Vol. 4078, 383-388, 2000.

8. L. Pang, W. Nakagawa, C.-H. Tsai, and Y. Fainman, 'Fabrication of 2D photonic crystal using multiple exposures', in Wave Optics and Photonic Devices for Optical Information Processing II, SPIE's 48th Annual Meeting, 3-8 August 2003.