Resume

Allan Sagle
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Education

1974 Ph.D in Physics from the University of California at Davis
Thesis: " The Absolute Measurement of Neutron Polarization in the 5 Nucleon Reaction"

Post doctoral research at the Lawrence Berkeley Laboratory 1974 - 1982
Experiments on the medium energy accelerator, the Bevetron

Work Experience

Berkeley Engineering and Research Nov 2006 – present
Designed, built and tested prototype non-stick electrosurgical forceps. Designed an IR system to detect the spatial and intensity distribution of carbon monoxide from a flame for oil refineries

4-Dimaging May 2006 – 2007
Calibrated and tested 3-dimensional imaging scanners that use structured light techniques. Updated a patent to include single shot techniques that eliminates blurring due to motion

ETEC: 1982- 2006

2004 Performed experiments to isolate the dose error due to shot noise by measuring shot noise dose and CD uniformity on a medium resolution machine at ETEC and a high resolution machine at LBNL. These latter experiments showed that shot noise could be reduced to manageable levels by using a mask writer with a small beam blur. Incorporated shot noise effects in the error budget for the next generation e-beam mask-maker

2002 Started working on the raster shaped beam product
Constructed an error budget
Tested the error budget. Correlated beam on edge noise with lithography CD uniformity by injecting 60 hz and white noise into the tool
Developed a technique to measure the isofocal dose using overlay shifts

1997 Performed system engineering for the raster multi-beam project which included the development of
- Error budgets
- Throughput models
- Writing strategies
- Study of system tradeoffs

1987 Software supervisor for the vector shaped beam tool called AEBLE
Up to 8 engineers
Developed software for calibrations, writing, registration, and metrology
Shipped releases to 12 customers
Implemented engineering change orders

1982 Control software engineer. I developed software for:
- electron column setup
- and shape calibration

Publications:

Exploring the fundamental limit of CD control: a model for shot noise in lithography
Ming L. Yu, Allan Sagle, and Benny Buller
Proceedings of SPIE -- Volume 5751, May 2005, pp. 687-698

Exploring the fundamental limit of CD control: a measurement of shot noise induced CDU in e-beam lithography
Ming L. Yu, Allan Sagle, and Benny Buller
Proceedings of SPIE -- Volume 5835, June 2005, pp. 105-114

Exploring the fundamental limit of CD control: shot noise and CD uniformity improvement through resist thickness
Ming L. Yu, Allan Sagle, and Benny Buller
Proceedings of SPIE -- Volume 5853, June 2005, pp. 42-51

Raster Shaped Beam Pattern Generation for 70 nm Photomask Production
Thomas H. Newman *et al.*
Proc. SPIE Int. Soc. Opt. Eng. 4889, 168 (2002)

Prototype raster multibeam lithography tool
S. T. Coyle, D. Holmgren, X. Chen, T. Thomas, A. Sagle, J. Maldonado, B. Shamoun, P. Allen, and M. Gesley
J. Vac. Sci. Technol. B 20, 2657 (2002)

Progress toward a high-brightness photoemission source for multiple-electron beam lithography
S. T. Coyle, A. Fernandez, G. Janaway, A. Sagle, and M. Mankos
J. Vac. Sci. Technol. B 19, 2581 (2001)

Electron--electron interactions in multibeam lithography columns
M. Mankos, A. Sagle, S. T. Coyle, and A. Fernandez
J. Vac. Sci. Technol. B 19, 2566 (2001)

Basic constraints for a multibeam lithography column
M. Mankos, S. Coyle, A. Fernandez, A. Sagle, W. Owens, J. Sullivan, and T. H. P. Chang
J. Vac. Sci. Technol. B 19, 467 (2001)

Multisource optimization of a column for electron lithography
M. Mankos, S. Coyle, A. Fernandez, A. Sagle, P. Allen, W. Owens, J. Sullivan, and T. H. P. Chang
J. Vac. Sci. Technol. B 18, 3010 (2000) PDF (558 kB)

System architecture choices for an advanced mask writer (100 to 130 nm)
Varoujan Chakarian *et al.*
Proc. SPIE Int. Soc. Opt. Eng. 3873, 228 (1999)

Design considerations for an electron-beam pattern generator for the 130-nm generation of masks
Frank E. Abboud, Sergey V. Babin, Varoujan Chakarian, Abe Ghanbari, Robert Innes, Frederick Raymond III, Allan L. Sagle, and Charles A. Sauer
Proc. SPIE Int. Soc. Opt. Eng. 3748, 385 (1999)

Low and medium energy physics experiments

Neutron-deuteron analyzing power measurements at 50 MeV. I. Backward angles
J. L. Romero *et al.*
Phys. Rev. C 25, 2214 (1982)

Time reversal and charge symmetry studies in single nucleon transfer reactions in the A = 5 system
A. L. Sagle, F. P. Brady, J. L. Romero, B. E. Bonner, N. S. P. King, M. W. McNaughton, and H. E. Conzett
Phys. Rev. C 25, 1685 (1982)

Measurement of deuteron-deuteron elastic scattering at 5.75 GeV/c
Edgar T. Whipple, V. Perez-Mendez, A. L. Sagle, R. L. Talaga, F. Zarbakhsh, J. B. Carroll, G. J. Igo, J. B. McClelland, M. Bleszynski, and K. Ganezer
Phys. Rev. Lett. 47, 774 (1981)

Correlations at small relative momenta among protons produced in collisions of 1.8 GeV/nucleon [sup 40]Ar with a KCl target
F. Zarbakhsh *et al.*
Phys. Rev. Lett. 46, 1268 (1981)

Search for quark effects in the d+[sup 4]He system
J. B. McClelland, J. B. Carroll, G. J. Igo, J. Oostens, F. Brochard, V. Perez-Mendez, A. L. Sagle, R. Talaga, E. t. B. Whipple, and F. Zarbakhsh
Phys. Rev. Lett. 45, 1674 (1980)

Tensor analyzing power in pd backward scattering at GeV energies
G. Igo *et al.*
Phys. Rev. Lett. 43, 425 (1979)

p-[sup 4]He elastic scattering at 5.75 GeV/c
M. A. Nasser *et al.*
Phys. Rev. C 17, 1748 (1978)

p-[sup 4]He elastic scattering at 1.05 GeV
J. V. Geaga, M. M. Gazzaly, G. J. Igo, J. B. McClelland, M. A. Nasser, A. L. Sagle, H. Spinka, J. B. Carroll, V. Perez-Mendez, and E. T. B. Whipple
Phys. Rev. Lett. 38, 1265 (1977)

Patents

1 6,724,002 Multiple electron beam lithography system with multiple beam modulated laser illumination
2 6,326,635 Minimization of electron fogging in electron beam lithography
3 6,262,429 Raster shaped beam, electron beam exposure strategy using a two dimensional multipixel flash field