Biographical Sketch

Chad B. O'Neal, Ph.D., P.E.
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Professional Preparation

Ph.D., Microelectronics-Photonics, University of Arkansas, 2004.
Certificate of Electronics Manufacturing, College of Engineering, University of Arkansas, 2001.
MS Mechanical Engineering, University of Arkansas, Fayetteville, 2000.
BS Mechanical Engineering, University of Arkansas, Fayetteville, 1998.

Appointments

Louisiana Tech University, May 2004-Present, Max Watson Sr. Endowed Professor of Mechanical Engineering (2007-present), Associate Professor Mechanical and Nanosystems Engineering, Institute for Micromanufacturing (Aug. 2010-Present), Assistant Professor (May 2004-Aug. 2010). Developing research program on advanced microenergy devices using silicon processes such as MEMS, micromachining, and integrated circuit process technologies. Teaching undergraduate courses in the area of materials and solid mechanics and graduate courses in microfabrication processing technologies and nanotechnology principles.

SYSCONN Corporation, Dec. 2000-Sept. 2004, President/CEO, Directed and participated in R&D of Microsystems design and packaging. Principal investigator for NSF Phase I SBIR award on laser bonding of silicon wafers, 2003 ($99,999). Designed and fabricated MEMS based signal acquisition system for miniature satellite communications system, 2002 ($75,000). Developed and prototyped wafer-level VCSEL package targeting 10GB/s data rate, 2002 ($33,400).

University of Arkansas, Jan. 2000 – May 2004, NSF IGERT Trainee, Microelectronics-Photonics Program. Focused on nanomachining applications with MEMS and MEMS design and packaging.

Sandia National Laboratories, May-Aug. 1999, Engineering Intern, Reliability Physics Department, developed and performed tests crucial for determining the operational and non-operational reliability, as well as investigation of the key parameters affecting the reliability of packaged Sandia MEMS microengine actuators.

Publications

Relevant Patents

US Patent #7,049,175, Method of Packaging RF MEMS, L.W. Schaper, A.P. Malshe, C.B. O'Neal, PCT filed 11/06/2002.

US Patent #7,224,508, MEMS-Based Optical Communications Beam Steering Apparatus, C. H. Chalfant III, F.J. Orlando, J.T. Gregory, C.B. O'Neal.

Selected Relevant Publications

C. Easter and C. B. O'Neal, "Characterization of high-pressure XeF_2 vapor-phase silicon etching for MEMS processing," *Journal of Microelectromechanical Systems,* vol. 18, no. 5, October, 2009, pp. 1054-1061.

D. K. Chambers, B. Raut, D. Qi, et al., "The effect of helium plasma etching on polymer-based optoelectronic devices", *Thin Solid Films*, vol. 517, no. 19, pp. 5743-5746, 2009.

C. B. O'Neal, A. P. Malshe, W. F. Schmidt*, et al.*, "Effects of die attachment induced stress on the reliability of a packaged MEMS device," *Journal of Microelectronics and Electronic Packaging,* vol. 6, 2009, pp. 164-171.

J. T. Brown, A. M. Popat, C. B. O'Neal, and Y. Xie, "Intermetallic Effects of Electroplated Lead-free Solder Bumps Using a Novel Single Chamber Electroplating Process for Large Diameter Wafers", in InterPack 2007, July, Vancouver BC, 2007.

V. Patil and C. B. O'Neal, "Adhesive Strength Characterization of CYTOP™: Low Temperature Wafer-Level Packaging", in *ASME International Mechanical Engineering Congress and Exposition (IMECE)*, November, Chicago, IL, 2006.

D. Spencer, A. P. Malshe, R. B. Foster, and C. B. O'Neal, "Novel Method for Wafer-Scale Packaging of Opto-electronic Devices," Proceedings of the SPIE, v 5288, *2003 International Symposium on Microelectronics*, pp. 708-713.

A.P. Malshe and C.B. O'Neal, "Wafer-level and Chip-scale Packaging of MEMS and Related Microsystems", MEMS and Related Microsystems Advanced Technology Workshop, sponsored by IMAPS, Scotts Valley, CA (November 2001).

A.P. Malshe, C.B. O'Neal, S.B. Singh, W.D. Brown, W.P.Eaton, W.M. Miller, "Challenges in the Packaging of MEMS, *International Journal of Microcircuits and Electronic Packaging*, vol. 22, no. 3, pp.233-241, 1999.

A.P. Malshe, C.B. O'Neal, S. Singh, Y. Tao, R. Cragan, and W. D. Brown, "Packaging and integration of MEMS and related microsystems for system-on-a-package (SOP)", Proceedings of the SPIE 2000 Symposium on Smart Materials and MEMS, Vol. 4235, pp. 198-208, 2001. (INVITED)

C.B. O'Neal, A.P. Malshe, S.B. Singh, W.D. Brown, W.P.Eaton, Challenges in the Packaging of MEMS, *Proceedings of the 1999 International Symposium on Advanced Packaging Materials*, Braselton, GA, March 14-17, pp.41-47.

Synergistic Activities

Registered Professional Engineer, Louisiana #33234.
Member American Society of Mechanical Engineering (ASME) 1994-Present.
Member Society of Automotive Engineers (SAE), 1995-Present.

Identification of Potential Conflicts of Interest of Bias in Selection of Reviewers

Collaborators and Co-editors: William D. Brown, Matthew H. Gordon, Nikhil Joshi, Ashwin Mohan, Ajay P. Malshe, Leonard W. Schaper, William F. Schmidt , Ken Vickers, Daryl Spencer (University of Arkansas, Fayetteville), William P. Eaton (AeroAntenna), Ronald B. Foster (Axept Inc.), Calvin Goforth (Virtual Incubation Company), Sven Eklund, Scott Gold, Sandra Selmic, Rastko Selmic, Chester Wilson, Kody Varahramyan, (Louisiana Tech University), William M. Miller (Sandia National Laboratories), Robert R. Reynolds (Adapco), Sushila B. Singh (Nortel Networks), (UAF), Yi Tao (Tohoku University), Kumar Virwani (Veeco, Inc.).

Graduate and Postdoctoral Advisors: Ajay P. Malshe (University of Arkansas, Fayetteville)

Thesis Advisor and Postgraduate-Scholar Sponsor: Purnima Bonta, Rajib Mukherjee, Sathiaya Mathusumi, Mallika Velamuri, Vikram Patil, Clayton Easter, Brian Butcher, Brijesh Raut, Ajay Popat, Joel Soman, Amy Cain-Scafano all at Louisiana Tech University.