

BIOGRAPHICAL STATEMENT

Name: Alfred B. O. Soboyejo

Nationality: U.S. Citizen

Academic Rank: Associate Professor
Department of Food, Agricultural and Biological Engineering,
Agricultural Engineering Building,
Department of Aerospace Engineering and Aviation,
The John Glenn Institute of Public Policy and Public Service.
The Ohio State University, Columbus, Ohio, 43210

Education:

UNESCO Post-Doctoral Fellow in Structural/Mechanical Engineering and Applied Mechanics. Carried out post-doctoral work in the following Universities:

1966 Massachusetts Institute of Technology, Cambridge.

1966-1967 University of Pennsylvania, Philadelphia.

1966-1967 Princeton University, Princeton, NJ.

1968 Imperial College of Science and Technology, University of London, United Kingdom.

1962-1965 **Fulbright Fellow and Noble Hancock Fellow** in Engineering, Stanford University (California).

1965 **Ph.D.**, Structural Engineering and Mechanics, Stanford University, (California).

1964 Degree of Civil Engineer (**C.E.**), Stanford University (California).

1963 **M.S.**, Structural Engineering and Engineering Mechanics, Stanford University (California).

1962 **B.S.**, Civil Engineering, University of London, United Kingdom.

Years of Service: 5 years at The Ohio State University, Columbus, Ohio 43210.

Related Experience:

1963-1965 Structural Design Engineer, Pregnoff and Mathew (Consulting Structural Engineers), Palo Alto and San Francisco, California.

1968-1995 Chairman/CEO, Soboyejo Associates (Consulting Engineers and Planners) Lagos and Zaria in Northern Nigeria, West Africa.

1995-1997 Visiting Professor, Department of Food, Agricultural and Biological Engineering; Department of Aerospace Engineering, Applied Mechanics and Aviation and Department of Statistics, The Ohio State University, Columbus, Ohio 43210

1997-Present Associate Professor, Department of Food, Agricultural and Biological Engineering and Department of Aerospace Engineering and Aviation, The Ohio State University, Columbus, Ohio 43210.

2002 Fellow, National Aeronautics and Space Administration (NASA), John Glenn Research Center, Cleveland, Ohio, USA (June – August 2002)

SELECTED PEER REVIEWED JOURNAL ARTICLES

- (1) Soboyejo, A. B. O. 1967. Distribution of extreme winds in Nigeria. *Journal of the Nigerian Society of Engineers, The Nigerian Engineer*, 7 (3). (Alfred Soboyejo's contribution: 100%)
- (2) Sonuga, J. O., Soboyejo, A. B. O., & Aluko, T. M. 1971. Research needs in water resources in Nigeria (Parts I, II, III). Part II – Methodologies (Probabilistic and Sequential Generation of Hydrological Data), *Journal of the Nigerian Society of Engineers, The Nigerian Engineer*, 7 (2). (Alfred Soboyejo's contribution: 33%)
- (3) Soboyejo, A. B. O. 1973. Statistical method for evaluation of structural reliability and minimum structural creep life at elevated temperatures. *International Journal of Mechanical Sciences*, 15, 563-571. (Alfred Soboyejo's contribution: 100%)
- (4) Soboyejo, A. B. O. 1973. Stochastic analysis for time dependent load transfer in reinforced concrete columns. *Journal of International Association of Bridge and Structural Engineering*, Zurich, Switzerland. (Alfred Soboyejo's contribution: 100%)
- (5) Soboyejo, A. B. O. 1973. Evaluation of structural creep reliability using entropy principles. *Journal of Materials Science and Engineering*, 12, 101-109. (Alfred Soboyejo's contribution: 100%)
- (6) Soboyejo, A. B. O. 1973. Structural wind loadings in West Africa. *Journal of The Federation of Building and Civil Engineering Contractors in Nigeria, West Africa*. 7 (6). (Alfred Soboyejo's contribution: 100%)
- (7) Soboyejo, A. B. O., & Shonubi, F. A. 1974. External design criteria for air-conditioning system design in Nigeria. *Journal of the Nigerian Society of Engineers, The Nigerian Engineer*, 9 (1). (Alfred Soboyejo's contribution: 85%)
- (8) Soboyejo, A. B. O. 1975. Distribution of extreme winds in West Africa. *West African Journal of Science*, 20 (1). (Alfred Soboyejo's contribution: 100%)
- (9) Soboyejo, A. B. O. 1975. Economic design of urban sewer systems with special reference to problems in Lagos, Nigeria. *The Nigerian Journal of Engineering*, 1 (3). (Alfred Soboyejo's contribution: 100%)
- (10) Dubey, S., Soboyejo, A. B. O., & Soboyejo, W. O. 1997. An investigation of the effects of stress ratio and crack closure on the micromechanisms of fatigue cracks growth in Ti-6Al-4V. In *Acta Materialia*, 45: 2777-2787. (Alfred Soboyejo's contribution: 40%)
- (11) Soboyejo, W. O., Ni, Y., Li, Y., Soboyejo, A. B. O., & Knott, J. F. 1998. A new multiparameter approach to the prediction of fatigue crack growth. In *International Journal of Fatigue and Fracture of Engineering Materials and Structures*, 21: 541-555. (Alfred Soboyejo's contribution: 20%)
- (12) Soboyejo, W. O., Rabeeh, B., Li, Y., Soboyejo, A. B. O., & Rokhlin, S. 1998. Mechanistically based models for the prediction of fatigue damage in a beta titanium alloy. In *International Journal of Fatigue and Fracture of Engineering Materials and Structures*, 21: 557-568. (Alfred Soboyejo's contribution: 20%)
- (13) Mercer, C., Soboyejo, A. B. O., & Soboyejo, W. O. 1999. Micromechanisms of fatigue crack growth in a forged Inconel 718 nickel-based superalloy. In *Journal of Materials Science and Engineering*. 270: 308-322. (Alfred Soboyejo's contribution: 40%)

- (14) Mercer, C., Soboyejo, A. B. O., & Soboyejo, W. O. 1999. Micromechanisms of fatigue crack growth in a single crystal Inconel 718 Nickel-based superalloy. In *Acta Materialia*. 1999, Vol. 47, No. 9: 2727-2740. (Alfred Soboyejo's contribution: 40%)
- (15) Balasubramanian V., Y. Li; T. Stotler; J. Crompton; A. B. O. Soboyejo; N. Katsube; W. O. Soboyejo. 1999. A New Friction Law for the Modeling of Continuous Drive Friction Welding: Applications to 1045 Steel Welds. In *Journal of Materials and Manufacturing Processes*, 14. (Alfred Soboyejo's contribution: 15%)
- (16) Soboyejo A. B. O and K. E. Nestor. 2000. A New Statistical Biomechanics Approach to Modeling of Bone Strength in Broiler Chickens and Turkeys. Part I – Theoretical Development. Part II – Validation of Theoretical Models. Biological Engineering Technical Paper No.1: In *Transaction of American Society of Agricultural Engineers*. 43 (6); 1997-2006. (*This is an important technical paper. The new methodology developed in this technical paper has beneficial applications in bioengineering and orthopedic medicine*). (Alfred Soboyejo's contribution: 90%)
- (17) Soboyejo. A. B. O.; S. Shademan; J.F. Knott and W. O. Soboyejo. 2001. A Physically-Based Model for the Prediction of Long Fatigue Crack Growth in Ti-6Al-4V. In *International Journal of Materials Science and Engineering*. A 315: 1-10. (Alfred Soboyejo's contribution: 40%)
- (18) Sullivan M., Vantoai Tara, and Fausey N. Beuerlein.J., Perkinson.R., and Soboyejo A. B. 2001.. Evaluating On-Farm Flooding Impacts on Soybean. In *Journal of Crop Science*, Crop Science Society of America, Madison, WI. 41: 93-100. (Alfred Soboyejo's contribution: 15%)
- (19) Soboyejo. A. B. O; H. Erdal. Ozkan; J.C.Papritan & Soboyejo, W. O. 2001. A New Multiparameter Approach to the Prediction of Wear rates in Agricultural Sprayer Nozzles. Part I – Probabilistic Multiparameter Model. In *Journal of Testing and Evaluation (JOTE)*, American Society of Testing and Materials. 372-376. (Alfred Soboyejo's contribution: 40%)
- (20) Soboyejo. A. B. O; H. Erdal. Ozkan; J.C.Papritan & Soboyejo, W. O. 2001. A New Multiparameter Approach to the Prediction of Wear rates in Agricultural Sprayer Nozzles. Part II – Validation of the Model. In *Journal of Testing and Evaluation (JOTE)* , American Society of Testing and Materials. 2001. 376-379. (Alfred Soboyejo's contribution: 40%)
- (21) Soboyejo A. B. O., Shademan S., Foster M., Katsube N., and Soboyejo W. O. 2001. A multiparameter approach to the prediction of fatigue crack growth in metallic materials. In *International Journal of Fatigue and Fracture of Engineering Materials and Structures*. 24: 225-241. (Alfred Soboyejo's contribution: 40%)
- (22) Shen. W; A. B. O. Soboyejo; and W. O. Soboyejo. 2002. A Probabilistic Modelling of Fatigue Crack Growth in Ti-6Al-4V. In *International Journal of Fatigue*. 23: 917-925. (Alfred Soboyejo's contribution: 40%)
- (23) Soboyejo. W. O; W. Shen; J. Lou; C. Mercer; V. Sinha and A. B. O. Soboyejo. 2002. A Probabilistic Framework for the Modelling of Fatigue in a Lamella XDTM Gamma Titanium Aluminide Alloy. In *International Journal of Fatigue*, 24: 69-81. (Alfred Soboyejo's contribution: 20%)

PRIZES AND AWARDS FOR RESEARCH, SCHOLARLY OR CREATIVE WORK

- (a) Awarded the degree of Doctor of Science (DSc), Honoris Causa, in 1990, by Kensington University, Glendale, California, USA, was in recognition of the contributions to engineering research and creativity which enabled him to provide solutions to several unusual structural and mechanical engineering design problems.
- (b) Received the Noble Hancock Award in recognition of excellence in Engineering Research and Scholarly Work, at Stanford University, Stanford, California, USA, 1964 to 1965.
- (c) Received the Fulbright Award in recognition of Excellence in Scholarly Work and Engineering Research, at Stanford University, Stanford, California, USA. 1962 to 1965.
- (d) Received an Award from United Nations Educational and Scientific Organization (UNESCO) in recognition of his excellence in Engineering Research and Scholarly Work in 1966. This Award enabled him to carry out further engineering research and scholarly activities at Massachusetts Institute of Technology (MIT), Cambridge, MA; Princeton University, Princeton, NJ; Imperial College of Science and Technology at The University of London, UK; and Glasgow University, Glasgow, Scotland, U.K., 1966 to 1968.
- (e) In 2001, received a letter of commendation from Dr. William E. Kirwan, President of The Ohio State University, Columbus, Ohio, on the innovative and beneficial results of his research on New Biomechanics Modeling of Bone Strength in Biological Systems, with beneficial applications in Biomedical Engineering and Orthopedic Medicine.
- (f) Life Member, American Society of Agricultural Engineers; 2001
- (g) U. S. National Science Foundation Award for Engineering Research. 1999.
- (h) Shell International Oil Company Award for Excellence in Scholarly work at Igbobi College, Lagos, Nigeria; and King's College, Lagos, Nigeria. 1953 – 1958.
- (i) Nigerian Federal Government Award, for Excellence in Scholarly work at The University of London. 1959 – 1962.

EDITORSHIPS OF OR SERVICE AS A REVIEWER FOR JOURNALS OR OTHER LEARNED PUBLICATIONS

- (a) Reviewer, American Society of Agricultural Engineers (ASAE), Structures and Environment Division.
- (b) Reviewer, Applied Mechanics Review, American Society of Mechanical Engineers.
- (c) Reviewer, The Nigerian Engineer (Journal of the Nigerian Society of Engineers).
- (d) Reviewer, West African Journal of Science (Journal of the West African Science Association).
- (e) Reviewer, The Nigerian Journal of Engineering (Journal of the Faculty of Engineering, Ahmadu Bello University, Zaria, Northern Nigeria). Journal of Engineering Construction in West Africa.
- (f) Editor, International Journal of Cement and Concrete Composites, beginning from the year 2001.

OFFICES HELD AND OTHER SERVICES TO PROFESSIONAL SOCIETIES AND ORGANIZATIONS

- (a) Reviewer of proposals for the National Science Foundation in the fields of Mechanics, Materials, Structural Engineering and Probabilistic Methods in Engineering.
- (b) Member of the Materials Engineering Committee of the American Society of Mechanical Engineers.
- (c) Member of the Biomaterials Committee of the American Society of Mechanical Engineers.
- (d) Member of the Structures and Environmental Engineering Committee of the American Society of Agricultural Engineers.
- (e) Member of the Committee of the American Society of Agricultural Engineers (ASAE) on Numerical Methods and Stochastic Simulations/Probabilistic Methods.
- (f) Member, Expert Committee of the Aerospace Engineering Group, of the American Society of Automotive Engineers.
- (g) Member, Society of Automotive Engineering on Probabilistic Methods in Engineering.

OTHER PROFESSIONAL/PUBLIC SERVICE

- (1) Worked with other ASME Members to organize the year 2000 international conference on Probabilistic Methods in Fatigue and Fracture of Materials and Structures.
- (2) Invited to co-edit a new Engineering book, Probabilistic Methods in Fatigue and Fracture, Trans-Tech (Publishers), Zurich, Switzerland, 2000.
- (3) Helped organize the year 2001 joint ASME/ASCE Mechanics and Materials International Conference on Materials for Development of Structures and Infrastructures.
- (4) Co-Edited the Proceedings of selected technical papers from the conference mentioned in (3) above to be published in the International Journal of Cement and Concrete Composites.
- (5) In 2001, elected Member Board of Trustees on Education, for Ohio Society of Professional Engineers (OSPE).

ADMINISTRATIVE SERVICE

- Member, Academic Affairs Committee of Department of Food, Agricultural and Biological Engineering (FABE)
- Member, Graduate Studies Committee, FABE
- Graduate School Representative (Category P), The Ohio State University, Columbus, Ohio..
- Member, Advisory Committee: Minority Engineering Program, Office of the Dean, College of Engineering, The Ohio State University.
- Organizer, Departmental Seminars in FABE Department, Spring 2002.

MAJOR ACADEMIC/PROFESSIONAL AWARDS AND COMMENDATIONS

- Award of American Society of Mechanical Engineers (ASME), for organization of the year 2000, International Symposium on Probabilistic Methods in Fatigue and Fracture in Machines and Structures, during the Annual International Conference of ASME, at Orlando, Florida.
- Life Member; American Society of Civil Engineers; 1998
- Member, National Society of Professional Engineers (NSPE) in the US in 1998
- Fellow; American Society of Civil Engineers; 1997
- Fellow; American Society of Mechanical Engineers; 1996
- Award for Engineering Excellence for the Creative Engineering Work of the Complete Engineering Design and Construction Management of the Civil, Structural, Mechanical, and Electrical Engineering Services of the Cathedral of St. Peter in Abeokuta, Nigeria, West Africa in 1996.
- Merit Award Winner; Afroil Plc, Lagos, Nigeria; 1992
- Merit Award Winner; Ogun State Water Corporation, Abeokuta, Nigeria; 1991
- Fellow; Nigerian Society of Engineers; 1987
- Member, American Society of Agricultural Engineers (since 1977)
- Registered Chartered Engineer by Council of Registered Engineers in Nigeria; 1977 (Equivalent to the P.E. in the United States. The Council of Registered Engineers of Nigeria grants reciprocity in professional engineering registration to registered P.E.s from any State in the US.)
- Member, American Society of Civil Engineers (since 1965).
- Member, American Society of Mechanical Engineers (since 1965).
- Fulbright Fellow & Noble Hancock Fellow; Stanford University (California); 1962-1965

The Honorable Sir Tafawa Balewa Award for Academic Excellence in Mathematics at King's College, Lagos, Nigeria.1958 (Sir Tafawa Balewa, from Northern Nigeria, was the first Prime Minister of Nigeria, at Independence, in 1960)