NIGEL N. CLARK

CURRICULUM VITAE

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AREAS OF EXPERTISE & INTEREST

Conventional and Alternative Fuels, Energy Systems and Conversion, Engine Design & Control, Engine Efficiency & Emissions, Vehicle Design & Propulsion, Transportation, Thermal Sciences

EDUCATION

1980 - 1985 Ph.D. Engineering
University of Natal (now University of KwaZulu-Natal), Durban, South Africa
Dissertation title: "A Study of Hydrodynamics and Mass Transfer in Small Bore Deep Shaft Reactors"

1975 - 1979 B.Sc. Chemical Engineering
University of Natal (now University of KwaZulu-Natal), Durban, South Africa
(Four-year degree accredited by the I.Chem.E. in the UK).

PUBLICATIONS

Dr. Clark is the author or co-author of over 500 publications and presentations, details of which are supplied separately.

RESEARCH AND CONSULTING ACTIVITY

Dr. Clark has directed major research programs for government, industry and nonprofit entities. He has served as Principal Investigator or Co-Principal Investigator on approximately $60 million of research during his career. He has received funding from the National Science Foundation, Department of Energy, Department of Transportation, Department of Defense, Environmental Protection Agency, States of California, New York, Texas, Maryland and West Virginia, major engine manufacturers, oil, fuel and additive manufacturers, the Coordinating Research Council, the Transportation Research Board, the Environmental Defense Fund and industrial and commercial entities. As a consultant, Dr. Clark has provided business technology evaluations, reviewed intellectual property, provided expert opinion, evaluated proposed research programs, presented workshops, prepared summary reviews for industry and examined intellectual property infringement. He holds four US patents.

Dr. Clark's most recent research and consulting efforts have addressed the design of a novel linear engine and alternator for the US Dept. of Energy – ARPA-e, fugitive methane emissions from adoption of natural gas as a heavy-duty vehicle fuel for the Environmental Defense Fund, evaluation of truck inspection and maintenance options for the California Air Resources Board, and review of ethanol blending effects for the Urban Air Initiative. He is widely known for pioneering research in alternative fuels evaluations, design and operation of truck and bus emissions testing systems, preparation of representative vehicle test schedules, modeling of vehicle performance and development of free piston engines.

EMPLOYMENT HISTORY

1990 – Present	Consultant in Energy Technology, Engines, Transportation and Emissions
2018 – Present	Research Professor and George B. Berry Chair Emeritus, West Virginia University
1999 – 2018	George B. Berry Chair of Engineering, West Virginia University
1990 – 2018	Professor, Department of Mechanical and Aerospace Engineering West Virginia University
2015 – 2018	Campus Provost West Virginia University Institute of Technology Montgomery, WV and Beckley, WV.
2011 – 2015	Associate Vice President, Academic Strategic Planning West Virginia University
2009 – 2011	Member, Board of Governors West Virginia University
2004 – 2009	Director, Center for Alternative Fuels, Engines & Emissions West Virginia University
1986 – 1990	Associate Professor, Department of Mechanical and Aerospace Engineering West Virginia University
1986 – 1995	Adjunct Associate Professor and Adjunct Professor, College of Mineral and Energy Resources
1984 – 1986	Research Assistant Professor, Particle Analysis Center West Virginia University
1982 – 1983	Factory Survey Engineer, Water Research Commission Durban, South Africa. (Surveys into water usage and wastewater disposal.)

1980 – 1982	Contract Researcher, Council for Mineral Technology Durban, South Africa. (Investigation of Deep Shaft Reactors for possible mineral processing application. Involved fundamental analysis of fluid flow.) Supported Ph.D. research.
1981	Part-time Lecturer, Engineering Faculty, University of Durban-Westville, Natal, South Africa. (Lectured in Thermodynamics, Managed Unit Operations Laboratory).
1979 – 1980	Fortran Programmer, CSP Project, University of Natal, Durban. (Modeling for supersonic shock wave gas reactors.)
1978 -1983	Part-time Fortran Programmer, Mobil Refining Co., Durban, South Africa. (Improvement and operation of program to monitor fluidized catalytic cracker performance.)
1977 – 1978	Undergraduate assistant, Sugar Milling Research Institute, Durban, South Africa. (Investigation into boiling flows in long tube vertical evaporators, and diffusion coefficients in sugarcane diffusion trains.)

SELECTED HONORS, AWARDS AND CONTRIBUTIONS

- Member, Students' Representative Council, University of Natal, 1977 and 1978
- Award of Distinction, Powder and Bulk Solids Conference, 1985
- Ralph R. Teetor Educational Award (Society of Automotive Engineers), 1988
- Researcher of the Year Award, WVU College of Engineering, 1987-88
- NSF Presidential Young Investigator, 1989
- Benedum Award for Science and Technology, 1990
- WVU College of Engineering Outstanding Teacher Award, 1990-91
- Donald Julius Groen Prize of the Institution of Mechanical Engineers (London), 1992
- Researcher of the Year Award, WVU College of Engineering, 1991-92
- Excellence in Oral Presentation Award, SAE Congress 1993
- Researcher of the year, WVU College of Engineering and Mineral Resources, 1996-97
- Award of the George Berry Chair of Engineering, WVU, 1999
- Society of Automotive Engineers Recognition Award (for presentation), 1999
- Researcher of the Year, WVU College of Engineering and Mineral Resources, 2000-01
- Donald T. Worrell Award, 2002
- Researcher of the Year, WVU College of Engineering and Mineral Resources, 2003-04
- Fellow, Society of Automotive Engineers, 2005
- Society of Automotive Engineers Excellence in Oral Presentation Award, 2010
- Advisor to 22 Ph.D. Students
- Reviewer for numerous journals, conferences and agencies
- Member, American Society of Mechanical Engineers (Present Member)
- Member, Society of Automotive Engineers (Present Member)
- Member, Tau Beta Pi
- Committee Member, Two National Academies Committees on Heavy- and Medium-Duty Fuel Economy

- Committee Member, National Academies Committee on Light-Duty Fuel Economy

INSTRUCTION AT WEST VIRGINIA UNIVERSITY

- Heat Transfer
- Internal Combustion Engines
- Thermodynamics and Fluids Laboratory
- Gas Liquid Systems
- Thermal-Fluids Laboratory
- Multiphase Flows
- Special Problems: Alternative Fuels, MAE 294
- Senior Design
- Topics in Fluids & Solids
- Advanced Vehicle
- Mobile Source Powerplants
- Machine Design & Manufacturing

SERVICE TO UNIVERSITY AND PROFESSION

- Society of Automotive Engineers Subcommittee Member, 1988-1990
- Undergraduate Advisor for Department, 1987-1996
- Co-Advisor for Society of Automotive Engineers Formula Car Design Team, 1988-89, 1989-1990
- Advisor for the WVU Methanol Car Conversion Team, 1988-1989, 1989-1990
- Member, WVU Water Research Institute Committee, 1987-1992
- Member of Executive Committee of Fine Particle Society, 1987-1991
- Vice Chairman, ASME Mountaineer Group, 1990-1992
- Member ASME Fluids Engineering Multiphase Flow Committee, 1989 - Present
- Advisor for SAE Formula Car Design Team, 1990-Present
- Member, Department Undergraduate Curriculum Committee, 1990-1995
- Member, Department Laboratory Committee, 1990-1991
- Member, Department Promotion and Tenure Committee, 1991-92
- Member of College of Engineering Planning Leadership group, and Chairman of College Strategic Planning Research Committee, 1993
- Chairman, ASME Mountaineer Group, 1992-93
- Vehicle Design Associate of the International Journal of Vehicle Design, 1993-Present
- Member of College Research Committee, 1993-94
- Member of College Initiative Committee on management operations, 1993-94
- Participant, College Retreat on Centers, 1993
- West Virginia University Faculty Senator, 1994-2001
- Diesel Engine Technology Workshop/Presentation for Hercules Aerospace Staff, July, 1994
- Participant, Southern Oxidants Study Work Group, July, 1994
- Advisor to Jennifer Hoppie: “GE Faculty of the Future Undergraduate Research Grant Program”, 1994
- Member of Committee to Unify Colleges of Engineering and of Mineral and Energy Resources, 1995
- West Virginia University Faculty Senate Executive Committee Member, 1995-96, 1996-97, 1997-98
- West Virginia University Expert Business Office Task Force on Procurement - Member, 1995

- West Virginia University Senate Committee on Research, Research Grants & Publications - Member, 1995 - 96, Chair Nominee, 1996, Chair, 1997 & 1998
- Senate Representative to University Graduate Council, 1995 - 1996
- West Virginia University Research Advisory Committee, 1995
- West Virginia University Research Task Force: Team Leader for 1/3 of the Task Force, 1996
- West Virginia University Research Task Force Implementation Committee on Funding Strategy, 1996 - 1997
- Review Team for Ph.D. in Chemistry, Member, 1996
- Select Committee on Faculty Rewards (to revise Promotion & Tenure Guidelines), Member, 1996
- College of Engineering and Mineral Resources Promotion and Tenure Committee, 1996-1997
- University Faculty Hearing Panel, 1997-1998
- Advisor to Talus Park, EG&G Byrd Scholar, 1996-1997
- Search Committee for Assoc. Dean of Arts & Sciences, 1997
- WVU Research Corporation Board, 1997 - 2000
- Search Committee for WVU Assoc. Provost for Research, 1998
- Member, Advisory Council to the Assoc. Provost for Research, 1998-2000
- Benedum Award Committee, 1998-1999
- WVU Senate Committee on Committees, Chair-Elect, 1999-2000
- WVU Representative to the Advisory Council of Faculty (State Level, 1999-2000
- WVU Task Force on Salary Policy, 1999-2000
- Committee to select four Eberly Professorships (Arts & Sciences), 1999-2000
- CEMR Dean's Review Committee, 1999-2000
- WVU Faculty Senate Executive Committee (ex-officio member), 1999-2000
- West Virginia University Press Advisory Board, 2000-2002
- Chair, State advisory Council of Faculty, 2000-2001
- CEMR Dean Search Committee, 2000
- Search Committee for Assoc. Director, WVU Research Corporation, 2000
- Faculty Representative for establishment of WVU Compact, 2000-2001
- Search Committee Chair for hiring for two research positions in Petroleum & Natural Gas Engineering, WVU, 2000-2001
- Search Committee for Endowed Professorship in Mathematics, 2001
- Committee to revise statewide Series 36 policy, 2001
- Director, Graduate Automotive Technology Education program (US DOE funded) at WVU, 2000-2001
- Advisor, WVU FutureTruck Student Team, 2000-2001, 2001-2002
- Committee to select Endowed Chairs in College of Law, 2001
- Served on EPA Technical Qualifications Board (Personnel Review), 2002
- Chaired Professors Review Committee, CEMR, 2001/2002
- Committee to select Eberly Professor in Teaching, College of Arts & Sciences, 2002
- Environmental Protection Agency Small Business Innovative Research Review Panel, Washington, DC, June 2002
- Participant, Heavy Duty Vehicle Emissions Modeling Group, California Air Resources Board, 2002
- MAE Dept. Promotion and Tenure Committee, 2002-2003
- MAE Mechanical Engineering Undergraduate Curriculum Committee, 2002
- Reviewed a Faculty Member for Promotion, University of California system, 2002
- Reviewed a Faculty Member for promotion, Wayne State University, 2002
- Chaired a Topic Area for MAE Ph.D. Qualifying Examination Committee (Written & Oral), 2002

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