VITA

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PROFESSIONAL REGISTRATIONS

Registered Patent Agent, US Patent and Trademark Office (2009)
Registered Professional Engineer (1980)—Engineer-in-Training (1975)

EDUCATION

M.S., Physics—December 1982, Auburn University
Thesis Title: *Automation of a Constant-Speed Mössbauer Spectrometer Using a Microcomputer and an Interferometer*. Received two awards for this research—see HONORS below.

Non-degree seeking, part-time student—September 1976-June 1978, Clemson University

Non-degree seeking, part-time student—January 1976-March 1976, Auburn University

B.E.E.—December 1974, Auburn University
Co-op student with Southern Railway System Mechanical Department, Atlanta, Georgia

A schedule of continuing education activities through conferences and short courses follows the Bibliography.

US PATENTS

First, or major, inventor of the following thirteen US Patents and two pending Applications

Methods for measuring and modeling the process of prestressing concrete during tensioning/detensioning based on electronic distance measurements, application publication US 2016/0274001 (2016)

Methods for measuring and modeling the structural health of pressure vessels based on electronic distance measurements, US Patent 9,354,043 (2016)

Sua sponte establishment of large-scale person-to-person emergency electronic messaging communications based in part on subscriber telephone numbers, US Patent 9,246,870 (2016)

Methods for modeling amplitude modulated light through dispersive optical systems and electronic distance measurement instruments, US Patent 8,630,828 (2014)

Methods and apparatus for optical amplitude modulated wavefront shaping, US Patent 8,416,396 (2013)

Method for establishing sua sponte large-scale person-to-person emergency electronic messaging communications based in part on subscriber telephone numbers, US Patent 8,358,751 (2013)

Methods for modeling the structural health of a civil structure based on electronic distance measurements, US Patent 8,209,134 (2012)

Method for locating an underground septic tank, conduit, or the like using injection/detection synchronization of an acoustic signal and digital signal processing, US Patent 8,116,994 (2012)

Methods for emergency mine communications using acoustic waves time synchronization and digital signal processing, application publication US 2011/0251968 (2011)

Method for measuring the structural health of a civil structure, US Patent 7,895,015 (2011)

Method for calibrating a laser-based spherical coordinate measurement system by a mechanical harmonic oscillator, US Patent 7,856,334 (2010)

Multidirectional retroreflectors, US Patent RE41,877 (2010)

Optical electronic distance measuring apparatus with movable mirror, US Patent 5,455,670 (1995)

Method for improving tread noise by relative rotation of a rib, and simulating the effect thereof, US Patent 4,788,651 (1988)
Method of simulating tire tread noise and apparatus, US Patent 4,727,501 (1988)

Co-inventor of nine additional US Patents and three pending US applications for FARO Technologies.

PUBLICATIONS

The attached bibliography lists my more general publications, conference papers, full listing of US Patents and Applications, and partial listing of foreign Patents.

PROFESSIONAL AFFILIATIONS

Institute of Electrical and Electronic Engineers (1974)—Senior Member (1996)
Sigma Xi Scientific Research Society (1983)
SPIE (1985)—Senior Member (2015)
Optical Society of America (1985)
American Society for Precision Engineering (2000)
The American Society for Nondestructive Testing (2015)
Listed in: Who's Who in Science and Engineering, American Men & Women of Science, Who's Who In Technology, Who's Who in the World

HONORS & AWARDS

Senior Member, SPIE (2015)
Senior Member, Institute of Electrical and Electronic Engineers (1996)
Sigma Xi Research Award, Auburn University Chapter (1983)
Outstanding Research Award in Physics, Auburn University (1983)
Graduate Student member of Auburn University Self-Study Committee (1982)
First Year Graduate Physics Award, Auburn University (1980)
Sigma Pi Sigma (national physics honor society) (1980)

WEB SITES

www.parker-ip-ent.com
http://spie.org/profile/dhiramparker
http://www.linkedin.com/in/dhiramparker
http://scholar.google.com/citations?user=Kzfort4AAAAJ

EMPLOYMENT

President
Parker Intellectual Property Enterprises, LLC, Earlysville, VA
August 2011–present

Part-time small business formed to develop my Independent Inventor patent portfolio, i.e., intellectual property retained by inventor.

Patent Agent
FARO Technologies, Inc, Exton & Kennett Square, PA
December 2008–January 2016

Provide assistance with corporate intellectual property matters for a leading international dimensional metrology instrument company (sales of around $250 million per year). First in-house patent practitioner for company, resulting in dramatic increase in number of applications filed (6 US patents issued in 2008, 37 issued in 2015). FARO debuted in the Annual IEEE Patent Power 2014 roundup of who has the most valuable high-tech patent portfolios in 1st place for Scientific Instruments, and was also in 1st place in 2015. Analyze US and foreign (PCTs, European, German, British, Japanese, and Chinese) applications, claims, written opinions, and office actions. Collaborate with the Chief Scientist, inventors, and attorneys on drafting claims and office action responses. Work with inventors on new patent applications. Analyze applications and patents for possible need for continuations and reissues. Monitor competitors' patent activities. Monitor relevant classes to identify emerging technologies, possible interferences, and oppositions using internet resources (Official Gazette, Pre Grant Publications, PAIR, etc.). Conduct prior art searches for potential new development projects using internet resources (USPTO, esp@cenet, Patentscope, FreePatentsOnline, etc.), and the public search room at the USPTO. Organize company

portfolio of US and foreign patents, applications, and docketing (229 issued US patents as of 1/1/2016). Monitor timely advancement of applications. Monitor attorney billing.

Senior Patent Classifier
SI International, Harrisonburg, VA
Technical Center 2800 (Semiconductors, Electrical and Optical Systems and Components)
Technical Center 3600 (Transportation, Construction, Electronic Commerce, Agriculture)
July 2007–November 2008

Senior Patent Classifier, for US Patent and Trademark Office Contractor, classifying applications (based on the claims) for Pre Grant Publications. This was a start-up division of SI International that won the first contract to classify US patent applications outside the USPTO. Within six months, SI ramped up to classify approximately 1,800 applications per day in a paperless environment. One of three former USPTO examiners advising management on USPTO proceedures. Trained in both the US Patent Classification (USPC) and International Patent Classification (IPC) systems. Became well versed in the Manual of Classification by the formal training and daily use. Worked primarily in metrolgy applications in Technical Center 2800 (Semiconductors, Electrical and Optical Systems and Components), i.e, Classes; 33 (Geometrical Instruments), 73 (Measuring and Testing), 181 (Acoustics), 250 (Radiant Energy), 324 (Electricity: Measuring and Testing), 356 (Optics: Measuring and Testing), 359 (Optics: Systems), and 702 (Data Processing: Measuring, Calibrating, or Testing). Cross trained in Technical Center 3600 (Transportation, Construction, Electronic Commerce, Agriculture, National Security and Licensing & Review). Conducted patent searches using USPTO supplied PubWEST software. Read and classified over 3000 sets of patent claims, and wrote technical reports on ways to improve classification operations.

Patent Examiner
US Patent and Trademark Office, Alexandria, VA
Art Unit 2877, Class 356 (Optics: Measuring and Testing)
April 2006–March 2007

Patent Examiner, working under a Primary Examiner. Completed USPTO course on Patent Examiner Initial Training (PEIT), and course on Practice & Procedure. Additional training on: 35 U.S.C. 101, 102, 103, and 112; Utility, restriction, Lack of Unity, Double Patenting, Reply by Applicant, Final Rejection/After Final Practice, Allowance and Issue, Affidavit Practice, and Appeals. Conducted searches of the prior art using EAST software. Became well versed in the Manual of Patent Examining Procedure by daily use. Attended short courses taught by the Scientific and Technical Information Center, and commercial search vendors, on electronic searching of non patent literature. Became familiar with the vast resources available to examiners via the USPTO intranet, technical library, and law library; as well as resources available to the public through the internet and Public Search Room.

Senior Engineer; Group Leader
National Radio Astronomy Observatory, Green Bank, West Virginia
Green Bank Telescope Project, Antenna Metrology Group
July 1990–April 2004

Joined NRAO, as part of the construction group building the $75,000,000 Green Bank Telescope (GBT), in the early stage of the project. The GBT is a 100 meter, offset paraboloid, 100 GHz, radio telescope, with an active surface, and is the world's largest fully steerable radio telescope. Following completion of construction and "first light" in August 2000, remained with the Green Bank Observatory staff to assist with antenna structural performance measurements and implementation of the laser rangefinder instrumentation.

The Antenna Metrology Group was originally formed for the $3,500,000 budget laser ranging R&D portion of the GBT project, which pioneered the use of custom designed laser ranging instruments, in a multilateration architecture, to correct the pointing and surface errors of the telescope. In April, 1995, assumed full responsibility of the Antenna Metrology Group, which varied between 3 and 8 with an average of ≈6 full-time employees, and

supervised a mix of EEs, physicists, technicians, machinists, programmers, and students. Expanded the scope to assume a broader role, i.e., responsibility for conventional metrology such as structural performance and integrity measurements, quality control, auditing the contractor's procedures, etc.

Proof-of-principle of the laser ranging instrument was quickly demonstrated in late 1990. Bolstered by successfull field trials of the instruments, alternate methods for correcting the pointing were tabled–allowing their budgets to be redistributed. By "first light", 20 custom built model PSH97 instruments and control panels were complete, 12 stable ground monuments were built and instruments were in place, ≈2000 of 2209 retroreflectors were mounted on the telescope surface panels, cardinal points on the structure were identified with target fixturing in place, and the key components of the metrology group's portion of the software (the lower level embedded control systems and a master control system to make distance measurements) awaited the Monitor & Control portion of the systems control software (the higher level systems that convert the structural target distance measurements into closed-loop pointing and surface corrections).

Identified instruments, optics, standards, and literature needed to support the laser ranging instrument calibration and to support construction metrology and quality control. Built a metrology and optics lab (capabilities list available) with an investment of ≈$100,000 in standards, instruments, and facilities. Studied, and educated personnel on methods and practices of precision engineering. NRAO Green Bank now has the premier metrology lab within the radio astronomy community, and a respectable metrology library collection. With these facilities and skills, the Antenna Metrology Group naturally filled voids in the quality control plan by assisting the contractor with measurements beyond his normal shop floor and field capabilities.

Provided metrology support in the following areas:
setting the azimuth track; measuring the taper on the 52-inch diameter wheels (one of which was found to be out of specification and was returned to the manufacturer); measuring the telescope natural frequencies and damping factor (damping estimate was off by a factor of 2); calibrating the subreflector actuator transducers; measuring movements of the elevation bull gear (which resulted in rework and a settlement by the contractor); measuring movements and the strain profile of the azimuth track wear strip and base plate (still a source of problems); measuring the deflection profile of the foundation (under a million pound loaded wheel); identifying problems with the contractor's load cell calibration; designing and calibrating the contractor's actuator setting fixture; identifying problems with the elevation encoder mounting (which led to a contractor redesign); identifying thermal drift in the azimuth encoder; identifying panel distortions introduced by the powder paint oven; tying the temporary construction survey bench marks to an A order NGS bench mark, and thus locating the telescope geodetic coordinates; surveying the elevation bearing axis and tying to Polaris surveys to set the azimuth encoder zero; etc.

After the telescope was completed: surveyed the as-built feed arm deflection in order to confirm and refine the finite element model and quantify the asymmetric deflections (not included in the symmetric model); and weighed the entire structure (16,727,000 lbf). Supported the NRAO Green Bank machine shop with machine alignment, calibrations, and dimensional measurements of unusual parts.

Reviewed all contractor metrology related procedures, and audited all of the contractor's optical alignment surveys. Played a primary role in setting the surface of the GBT. The project manager took my recommendations and convinced the contractor to radically modify their procedures, which ultimately resulted in a surface much better than the specification, and cut ≈6 months from the construction schedule. Designed and built a unique panel setting tool to assist the contractor in setting the surface (later adopted by the Sardinia Radio Telescope project). Developed the mathematics and algorithms to calibrate and correct for rotations of the panel-setting tool.

Attended all construction group and design review meetings and provided oversight input. Gave presentations at the annual GBT Advisory Committee technical review meetings. Es-

tablished contacts and ties with the greater metrology community through conferences, publications, and personal contacts. Designed numerous jigs and fixtures for special alignment and calibration jobs. Co-authored a patent for methods using multiple laser rangefinder instruments to simultaneously measure multiple targets. Architect for an improved hydrostatic level, which is thought to be the most accurate, long base line, level built to date (standard uncertainty of 0.009mm/62m). Demonstrated the mechanism responsible for the GBT track wear strip creep problem and proposed an experiment to verify.

Consulted with the Large Millimeter Telescope, Hobby-Eberly Telescope, Sardinia Radio Telescope, Atacama Large Millimeter Array, and Arecibo Telescope, on large-scale metrology issues. Consulted with the Jet Propulsion Lab and completed a $461,000 contract to build instruments for the JPL GeoSAR project. Consulted with SAR*STAR and SiWave on a second generation GeoSAR improvement. Consulted with Harvard High Energy Physics Lab on their instrumentation to align targets in the Superconducting Super Collider. Consulted with NASA Goddard Space Flight Center, Experimental Instrumentation Branch, on their electronic distance measurement instrumentation design. Consulted with West Virginia University Department of Civil and Environmental Engineering and facilitated the loan of a PSH97 instrument to measure deflections of a bridge. Served as a mentor to 9 summer students and 7 co-op students.

Manager, Engineering; and Acting Manager, Instrumentation & Imaging Group
Quantex Corporation, Rockville, Maryland
October 1988–June 1990

Worked with marketing and research groups to translate Quantex infrared phosphor sensor technology into commercial imaging instruments. Main areas of interest were the use of Quantex phosphor screens for x-ray imaging and alpha particle detection. Set up digital image processing lab. Designed and built an intensified solid state camera/frame grabber system and a scanning laser/photon counting imager interfaced to a frame grabber. Integrated software and wrote 80286 assembly language portion.

Sr. R&D Engineer
B. F. Goodrich/Uniroyal Goodrich Tire Co.
B. F. Goodrich R&D Center, Brecksville, Ohio
Tire Performance R&D Department
November 1983–November 1987

Coinventor of a digital audio signal processing system to model and simulate tire tread noise. This system produces an audio signal for aural evaluation of a proposed tire tread from the design, without actual construction of test tires. Developed the theory and outlined the equipment & software required. Principal author of patent applications. System was used by tire design group to screen and optimize the tread design of all new tires.

Devised, built, and tested a Phase-Modulated Moiré Interferometer image processing system to automate the interpretation of moiré fringes for the full field measurement of strain in rubber specimens. This instrument modulates a moiré fringe pattern and implements a digital signal processing algorithm in order to: extract the phase and magnitude of the moiré component from a background image in floating point format, calculate the gradient, and calculate the frequency vector of a specimen grating at 64K points in under 5 minutes. System hardware consists of: 256×256 square pixel Charge Injection Device solid-state camera, camera controller/frame grabber, optical relay system, reference grating translator, and an IBM PC/XT. Software written in 8087/8088 Assembly language, with extensive use of 8087 Math Coprocessor.

Set up electronics shop to support departmental research activities and supervised the electronics technician. Purchased instrumentation, computer, and peripheral equipment for department.

Physicist, GS-1310-12
US Army Test, Measurement & Diagnostic Equipment Support Group, Metrology Directorate, Army Primary Standards Laboratory, Redstone Arsenal, Alabama

Physical Standards & Development Laboratory
January 1983–October 1983

Devised, built, and tested a new, absolute, primary standard calibration system to measure 15–20 Ml/minute gas flow rate of a capillary tube while maintaining a constant 1" H_2O differential pressure. This method was demonstrated to be more accurate, more repeatable, simpler, faster, and less costly than previously used methods. An automated version of my original equipment was used to calibrate all secondary reference lab gas mask testers. Worked on several metrology microprocessor applications including interfacing a 6809 to an Intel 8231 Arithmetic Processing Unit for floating point calculations in a secondary reference pressure standard. Spent some time at the deadweight load cell calibration lab.

Graduate Student
Auburn University, Auburn, Alabama
September 1979–December 1982

Designed, built, and tested a microprocessor-based control system to automate a Mössbauer Spectrometer (measures the recoilless resonant nuclear absorption of gamma-rays). The instrument was equipped with a 2 mW HeNe laser Michelson interferometer, optoelectronic fringe detector/counter, crystal clock counter, and stepper motor driven control valves to provide closed-loop speed control. NaI(TI) scintillation photomultiplier, and single-channel pulse height analyzer circuits were built and interfaced to the microprocessor via counter/timer chips to count gamma-rays. All software was written in 1802 absolute machine code to run on an ELF II microcomputer with only 8k bytes of RAM and a 256 byte monitor program. The instrument was tested using a 2 mCi ^{57}Co source and an ^{57}Fe absorber with excellent results. As a Graduate Teaching Assistant, I taught three sophomore physics, and pre-med physics, labs each quarter. Selected as the Graduate Student on the University Self-Study Committee.

Project Engineer
Owens/Corning Fiberglas, Amarillo, Texas
Plant Engineering Department—Assigned to Corporate Construction Group
June 1978–September 1979

Responsible for 50% of the electrical construction and start-up of a new fiberglass reinforcements manufacturing facility ($110,000,000 project). Assumed duties of the Project Electrical Construction Engineer, in his absence. Participated in project management meetings. Areas of responsibility included: power distribution (40 MW 13.8kV), waste treatment, utilities (steam boilers, compressors, chillers, demineralized water, fire protection), and process equipment. Inspected electrical work, resolved drawing errors and interferences, and coordinated electrical construction and start-up testing with design engineers and other departments.

Project Engineer
Owens/Corning Fiberglas, Anderson, South Carolina
Plant Engineering Department
April 1976–May 1978

Specified and installed new process equipment, modified existing control systems, and provided engineering support to the Maintenance Department. Increased the glass furnace materials weighing and mixing capacity by making extensive logic changes to the relay control system, modifying the computer software, and replacing mechanical scales with load cells. All changes were made under my supervision, with a maximum system down–time of 4 hours per day. The average cycle time was reduced from 12 to 5 minutes per batch. The repeatability of the weighing operation was improved, which resulted in tighter tolerances. As a result of these improvements, glass production was increased and all furnaces experienced improved performance. Exploited the educational benefits by taking daytime graduate level courses at Clemson University in Quantum Physics, Solid State, and Applied Mathematics (12 Semester hours total).

Part-time student

Auburn University, Auburn, Alabama
January 1976–March 1976

After getting married in December, I returned to Auburn (where my wife was a student) and used the university placement office to look for another job, and took some physics courses.

Plant Engineer
Frit Industries, Ozark, Alabama
February 1975–January 1976

Responsible for specifying and purchasing mechanical and electrical equipment, as well as implementation of plant modernization program. Worked with the Technical Director to develop a new sulphur prilling process, from conception to pilot plant construction. Consulted with the plant engineer at the Buffalo, NY plant and with design engineers on a zinc sulfate plant at the Walnut Ridge, AK plant. Extensive experience with materials handling equipment, molten sulphur piping, size reduction equipment, railroad facilities, wastewater treatment and plant utilities.

Auburn University Co-op student
Southern Railway, Mechanical Department
Worked at the following locations.
January 1972–August 1974

System Assembly Shop, Chattanooga, Tennessee (2 quarters). This facility completely rebuilt two diesel locomotive engines per week, and reconditioned parts for the running repair of the 1184 locomotive fleet. Worked with the Process Engineer on automation projects, designed jigs and fixtures, and followed-up on contract machine shop work.

Environmental and Equipment Engineers Office, Atlanta, Georgia (2 quarters). This office was responsible for all facility design projects and capital expenditures, with an annual budget of around $10,000,000. Worked with the Electrical Engineer and the Wastewater Treatment Engineers on new facilities. I also got surveying and drafting experience.

Hayne Car Shop, Spartanberg, South Carolina. This shop performed all boxcar, passenger, and private office car repairs. Worked with the Cost Control Engineer doing time and motion studies in the boxcar repair facility and blacksmith shop, estimated repairs on incoming damaged cars, and assisted the Quality Control Engineer with office car shakedown testing.

Prior to 1972
Grew up observing and working in my father's construction, cabinet shop, building supply, feed mill, catfish, livestock, and land development operations (laborer, carpenter, truck driver, bulldozer operator, representative, liaison, supervisor, etc.). Raised cattle for 4-H projects. In high school and first summer of college, worked at a TV and appliance repair shop. In the summer of 1971, worked for an HVAC and mechanical contractor, in the sheet metal shop.

Bibliography

[1] David H. Parker and John M. Payne. *Methods for measuring and modeling the process of prestressing concrete during tensioning/detensioning based on electronic distance measurements*, 2016. United States Patent Application Publication US 2016/0274001.

[2] Robert E. Bridges, David H. Parker, and Kelley Fletcher. *Method and apparatus for using gestures to control a laser tracker*, 2016. United States Patent Application Publication US 2016/0266229.

[3] Robert E. Bridges and David H. Parker. *Three-dimensional measurement device having three-dimensional overview camera*, 2016. United States Patent 9,417,317.

[4] Robert E. Bridges, David H. Parker, and Kelley Fletcher. *Method and apparatus for using gestures to control a laser tracker*, 2016. United States Patent 9,383,189.

[5] Robert E. Bridges, David H. Parker, and Kelley Fletcher. *Method and apparatus for using gestures to control a laser tracker*, 2016. United States Patent 9,360,301.

[6] David H. Parker and John M. Payne. *Methods for measuring and modeling the structural health of pressure vessels based on electronic distance measurements*, 2016. United States Patent 9,354,043.

[7] David H. Parker and Ginger B. Parker. *Sua sponte establishment of large-scale person-to-person emergency electronic messaging communications based in part on subscriber telephone numbers*, 2016. United States Patent 9,246,870.

[8] Robert E. Bridges, David H. Parker, Kelly Fletcher, Gregory D. Pease, and Robert C. Mehler. *Method and apparatus for using gestures to control a laser tracker*, 2016. United States Patent 9,234,742.

[9] Robert E. Bridges and David H. Parker. *Coordinate measurement machine with distance meter and camera to determine dimensions within camera images*, 2015. United States Patent 9,163,922.

[10] Kenneth Steffey, Robert E. Bridges, and David H. Parker. *Combination scanner and tracker device having a focusing mechanism*, 2015. United States Patent Application Publication US 2015/0241204.

[11] Robert E. Bridges and David H. Parker. *Three-dimensional measurement device having three-dimensional overview camera*, 2015. United States Patent 9,113,154.

[12] Kenneth Steffey, Robert E. Bridges, and David H. Parker. *Multi-mode optical measurement device and method of operation*, 2015. United States Patent 9,036,134.

[13] Robert E. Bridges and David H. Parker. *Six degree-of-freedom laser tracker that cooperates with a remote projector to convey information*, 2014. United States Patent 8,848,203.

[14] David H. Parker. *Methods for modeling amplitude modulated light through dispersive optical systems and electronic distance measurement instruments*, 2014. United States Patent 8,630,828.

[15] Nils Steffensen and David H. Parker. *Method and apparatus for using gestures to control a laser tracker*, 2013. United States Patent 8,537,371.

[16] Markus Grau and David H. Parker. *Measurement machine utilizing a barcode to identify an inspection plan for an object*, 2013. United States Patent Application Publication US 2013/0197852.

[17] David H. Parker. *Methods and apparatus for optical amplitude modulated wavefront shaping*, 2013. United States Patent 8,416,396.

[18] David H. Parker and Ginger B. Parker. *Method for establishing sua sponte large-scale person-to-person emergency electronic messaging communications based in part on subscriber telephone numbers*, 2013. United States Patent 8,358,751.

[19] David H. Parker and John M. Payne. *Methods for modeling the structural health of a civil structure based on electronic distance measurements*, 2012. United States Patent 8,209,134.

[20] David H. Parker. *Method for locating an underground septic tank, conduit, or the like using injection/detection synchronization of an acoustic signal and digital signal processing*, 2012. United States Patent 8,116,994.

[21] David H. Parker. *Methods for emergency mine communications using acoustic waves time synchronization and digital signal processing*, 2011. United States Patent Application Publication US 2011/0251968.

[22] Robert E. Bridges and David H. Parker. *Use of inclinometers to improve relocation of a portable articulated arm coordinate measuring machine*, 2011. United States Patent Application Publication US 2011/0178763 (abandoned).

[23] David H. Parker and John M. Payne. *Method for measuring the structural health of a civil structure*, 2011. United States Patent 7,895,015.

[24] David H. Parker. *Method for calibrating a laser-based spherical coordinate measurement system by a mechanical harmonic oscillator*, 2010. United States Patent 7,856,334.

[25] David H. Parker. *Multidirectional retroreflectors*, 2010. United States Patent RE41,877; reissue of US 7,101,053 to broaden claims.

[26] John M. Payne, David H. Parker, and Richard F. Bradley. *Optical Electronic Distance Measurement Apparatus with Movable Mirror*, 1995. United States Patent 5,455,670.

[27] David Hiram Parker, David George Caruso, Robert John Blinn, and Donald Burns Thrasher. *Method for improving tread noise of a tire by relative rotation of a rib, and simulating the tread noise effected thereof*, 1994. European Patent 329,927.

[28] David Hiram Parker, David George Caruso, Robert John Blinn, and Donald Burns Thrasher. *Method and system for the evaluation of tire tread noise*, 1994. European Patent 280,288.

[29] David H. Parker, David G. Caruso, Robert J. Blinn, and Donald B. Thrasher. *Method for improving tread noise through relative rotation of rib and simulating effect thereof*, 1989. Japanese Patent 1,250,831.

[30] David H. Parker, David G. Caruso, Robert J. Blinn, and Donald B. Thrasher. *Method for improving tread noise by relative rotation of a rib and simulating the effect thereof*, 1988. United States Patent 4,788,651.

[31] David H. Parker, David G. Caruso, Donald B. Thrasher, and Robert J. Blinn. *Method of simulating tire tread noise and apparatus*, 1988. United States Patent 4,727,501.

JOURNAL ARTICLES

[32] David H. Parker, Michael A. Goldman, Bill Radcliff, and John W. Shelton. Attenuated retroreflectors for electronic distance measurement. *Optical Engineering*, 45(7):073605, July 2006.

[33] David H. Parker and John W. Shelton. Calibration and modeling of a dual axis inclinometer. *Precision Engineering*, 29(3):381–385, July 2005.

[34] David H. Parker, Bill Radcliff, and John W. Shelton. Advances in hydrostatic leveling with the NPH6. *Precision Engineering*, 29(3):367–374, July 2005.

[35] David H. Parker. Multidirectional retroreflector assembly with a common virtual reflection point using four-mirror retroreflectors. *Precision Engineering*, 29(3):361–366, July 2005.

[36] David H. Parker, Robert Anderson, Dennis Egan, Troy Fakes, Bill Radcliff, and John W. Shelton. Weighing the world's heaviest telescope at eight points with corrections for lifting perturbations. *Precision Engineering*, 29(3):354–360, July 2005.

[37] W. T. Estler, K.L. Edmundson, G.N. Peggs, and D. H. Parker. Large-scale metrology—an update. *Annals of the CIRP*, 51(2):587–609, 2002.

[38] J.M. Payne, D. Parker, and R.F. Bradley. Rangefinder with fast multiple range capability. In Thierry Bosch and Marc Lescure, editors, *Selected Papers on Laser Distance Measurements, SPIE Milestone Series MS 115*, pages 257–262. SPIE Optical Engineering Press, 1995. reprint of Review of Scientific Instruments article.

[39] J.M. Payne, D. Parker, and R.F. Bradley. Rangefinder with fast multiple range capability. *Rev. Sci. Instrum.*, 63(6):3311–3316, June 1992.

[40] David H. Parker. Moiré patterns in three-dimensional Fourier space. *Optical Engineering*, 30(10):1534–1541, October 1991.

[41] David H. Parker and John D. French. Simple single-channel pulse height analyzer. *American Journal of Physics*, 53(8):793, 1985.

THESIS

[42] David H. Parker. Automation of a constant-speed Mössbauer spectrometer using a microcomputer and an interferometer. Master's thesis, Auburn University, 1982.

CONFERENCE PROCEEDINGS

[43] David H. Parker and John M. Payne. Active surface architectures of large radio telescopes. International Union of Radio Science (URSI) XXVII General Assembly, Maastricht, The Netherlands, 2002.

[44] David H. Parker and Sivasankaran Srikanth. Measurement system for the Green Bank Telescope. In *2001 IEEE Antennas & Propagation Society International Symposium*, pages 592–595. IEEE, 2001.

[45] David H. Parker. Methods for correcting the group index of refraction at the ppm level for outdoor electronic distance measurement. In *Proceedings ASPE 2001 Annual Meeting*, pages 86–87. American Society for Precision Engineering, 2001.

[46] David H. Parker, John M. Payne, John W. Shelton, and Timothy Lee Weadon. Instrument for setting radio telescope surfaces. In *Proceedings ASPE 2000 Annual Meeting*, pages 21–24. American Society for Precision Engineering, 2000.

[47] David H. Parker, John W. Shelton, and Bill Radcliff. Enhancements to the Pellissier H5 hydrostatic level. In *Proceedings ASPE 2000 Annual Meeting*, pages 401–404. American Society for Precision Engineering, 2000.

[48] David H. Parker and John M. Payne. Metrology system for the Green Bank Telescope. In *Proceedings ASPE 1999 Annual Meeting*, pages 21–24. American Society for Precision Engineering, 1999.

[49] S. Srikanth, R. Norrod, L. King, and D. Parker. An overview of the Green Bank Telescope. In *1999 IEEE Antennas & Propagation Society International Symposium*. IEEE, 1999.

[50] R. Hall, M.A. Goldman, David H. Parker, and John M. Payne. Measurement program for the Green Bank Telescope. In *Proceedings of SPIE*, volume 3357, pages 265–276, 1998.

[51] David H. Parker. An optical metrology system for the Green Bank Telescope–a progress report. National Radio Science Meeting (URSI), Boulder, Colorado, 1998.

[52] M. A. Goldman, R. E. Creager, D. H. Parker, and J. M. Payne. Rangefinder metrology for the Green Bank Telescope. In *Optoelectronic Distance/Displacement Measurements and Applications*, volume 14. European Optical Society, Topical meetings digest series, Ecole des Mines de Nantes, France, 1997.

[53] John M. Payne and David H. Parker. A metrology system for the active control of a large radio telescope. International Union of Radio Science (URSI) XXV General Assembly, Lille, France, 1996.

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[54] David H. Parker. Working notes on the Green Bank Telescope laser metrology system. GBT Memo 230, the National Radio Astronomy Observatory, 2004.

[55] David H. Parker and John Shelton. Calibration of Kelvin clamp Euler angles for absolute instrument orientation. GBT Memo 229, the National Radio Astronomy Observatory, 2004.

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POWERPOINT PRESENTATIONS
available on request

[76] David H. Parker. *The Robert C. Byrd Green Bank Telescope Project*, 2005. PowerPoint presentation to the staff of VertexRSI, Richardson, TX.

[77] David H. Parker and John M. Payne. *Laser metrology system for the Arecibo Radio Telescope*, 2003. PowerPoint presentation to the Arecibo staff, Arecibo, PR.

[78] David H. Parker and John W. Shelton. *Weighing the GBT*, 2003. PowerPoint presentation to the Green Bank staff, Green Bank, WV.

[79] David H. Parker. *The GBT laser metrology system*, 2003. PowerPoint presentation to the Precision Telescope Control System Advisory Committee, Green Bank, WV.

[80] David H. Parker and John M. Payne. *Active surface architectures of large radio telescopes*, 2002. PowerPoint presentation at International Union of Radio Science (URSI) XXVII General Assembly, Maastricht, The Netherlands.

CONFERENCES and SHORT COURSES

1. Coordinate Measurement Society Conference, Annual Meeting, Nashville, 7/2016
2. 35 U.S.C. 101, 102, 103, and 112; Utility, restriction, Lack of Unity, Double Patenting, Reply by Applicant, Final Rejection/After Final Practice, Allowance and Issue, Affidavit Practice, and Appeals, series of 15 short courses (54 hours), US Patent and Trademark Office, Alexandria, 6/2006–1/2007
3. Practice & Procedure, 5 day course, US Patent and Trademark Office, Alexandria, 6/2006
4. Patent Examiner Initial Training (PEIT), 12 day course, US Patent and Trademark Office, Alexandria, 4/2006
5. American Society for Precision Engineering, 20th Annual Meeting, Norfolk, 11/2005
6. Traceability in large-scale metrology, international two-day workshop, organized by National Physical Laboratory (NPL), Physikalisch-Technische Bundesanstalt (PTB), and National Institute of Standards and Technology (NIST), London, 6/2003
7. International Union of Radio Science (URSI) XXVII General Assembly, Maastricht, The Netherlands, 8/2002
8. American Society for Precision Engineering, 16th Annual Meeting, Washington, 11/2001
9. American Society for Precision Engineering, 15th Annual Meeting, Scottsdale, 10/2000
10. American Society for Precision Engineering, 14th Annual Meeting, Monterey, 11/1999
11. National Design Engineering Show, Chicago, 3/1999
12. National Radio Science Meeting (URSI), Boulder, 1/1998
13. Quality Expo, Chicago, 4/1997
14. I.E.E.E. International Conference on Acoustics, Speech, and Signal Processing, Detroit, 5/1995

15. National Design Engineering Show, Chicago, 3/1995
16. T. Moore Jackson Chapter of the West Virginia Society of Professional Engineers–invited speaker, 1/1993
17. Electronic Imaging '89, Boston, 10/1989
18. S.P.I.E. 32nd Annual International Technical Conference, San Diego, 8/1988
19. S.P.I.E. 31st Annual International Technical Conference, San Diego, 8/1987
20. *Digital Image Processing*, one day short course at S.P.I.E. Conference, 8/1987
21. Machine Vision Association Vision '87, Detroit, 6/1987
22. I.E.E.E. International Conference on Acoustics, Speech, and Signal Processing, Dallas, 4/1987
23. O.S.A. Annual Meeting, Seattle, 10/1986
24. *Optical Testing*, one day short course at O.S.A. Meeting, 10/1986
25. Machine Vision Association Vision '86, Detroit, 6/1986
26. I.E.E.E. Electro/86 & Mini/Micro, Boston, 5/1986
27. S.P.I.E. O-E/LASE '86 Symposium Los Angeles, 1/1986
28. *Digital Spectral Analysis*, one week short course, Stanford University, 8/1985
29. 5th Annual International Quality Expo Test, Inspection, Measurement and Evaluation Conference and Trade Show, Chicago, 4/1985
30. Machine Vision Association Vision '85, Detroit, 3/1985
31. Society for Experimental Mechanics Fall Conference, Milwaukee, 11/1984
32. S.P.I.E. 28th Annual International Technical Symposium on Optics and Electro-Optics, San Diego, 8/1984
33. *Computer Vision and Image Processing*, one week short course, University of Michigan, 7/1984
34. BFGoodrich Fundamental Tire Construction Program, Akron, 4/1984
35. National Design Engineering Show and ASME Conference/National Plant Engineering & Maintenance Show and Conference, Chicago, 3/1984
36. 4th Annual International Quality Expo Test, Inspection, Measurement and Evaluation Conference and Trade Show, Chicago, 3/1984
37. *Motorola Microprocessor Course*, one week short course, Motorola Technical Training, Phoenix, 12/1978
38. *Power Systems Relaying*, I.E.E.E. two day short course, Amarillo, 11/1978
39. *Modicon Programmable Controllers*, one week short course, Modicon Training Center, Houston, 10/1978
40. *National Electrical Code*, short course, University of Alabama at Birmingham, 5/1975