



Curriculum Vitae

Faculty Name: Cleo L. Bentley, Jr., Ph. D. **Work Address:** P.O. Box 519; MS 2230
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Position Title: Professor

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Education:	Degree and Area of Study	Institution Name	Degree Date
	Ph.D., Physics	Howard University	1974
	M.S., Physics	Howard University	1972
	B.S., Physics	Howard University Phi Beta Kappa	1968
	H.S. Valedictorian	Merrill High	1964

Teaching Experience	Position Title	Institution Name	Position Dates (Beginning and End)
	Professor of Physics	Prairie View A&M University	1982-present
	Professor and Department Head of Physics	Prairie View A&M University	1982-2001
	Visiting Scientist	Houston Advanced Research Center	1994-1996
	Visiting Professor	Texas A&M University (Med. School) Physics Research	Summers 1986-1989 1996-1998
	Assistant Professor of Physics	Texas Southern University	1976-81
	Member Technical Staff	Aerospace Corporation, Los Angeles, CA	1977-80, (Summers & Decembers.)
	Assistant Prof. of Physics	Fed. City Col. (now U. D.C.) Washington, D.C.	1974-76
	Math Coordinator	NIH/HEW	1973-76
	Assistant Professor of Physics Physics Instructor	Howard University Howard University	1975-76 (Summers) 1967-68, 70-72

Professional Publications:

C. L. Bentley, Jr., "Bentley Atom: Precisely oriented electron elliptical orbits from Z Quantized angular momentum and nuclear force field Fresnel Diffraction Pattern to explain electron SPDF-subshell positions," in process

B. Cudnik, C. Bentley, M. Rahman, Physics Laboratory Manual-Classical Mechanics, Kendall

Hunt Publisher, ISBN 9781465255983, 2014

C. L. Bentley, W. B. Cade, A. Razzaq, E. Reddic. "Daily Observation at PVSO," Am. Geophysical Union Conference, San Francisco, CA, December 13, 2010.

Alexey Belyanin, Cleo Bentley, Federico Capasso, Olga Kocharovskaya, and Marlan O. Scully, "Inversionless lasing with self-generated driving field," *Physical Review A.*, Vol. 64, 013814, June 2001.

C.L. Bentley, Jr., Jiaren Liu, Yan Liao, "Cavity EIT of driven Lambda three-level atoms: A transparent window narrowing below a natural width," *Physical Review A*, Vol. 61, February 2000.

C.L. Bentley, Jr., Jiaren Liu, "LWI in a driven Lambda three-level atom and effects of the probe laser on EIT," October 1999, Vol. 169, *Optics Communications*, pp. 289-299.

Alam, S., Rahman, M.O., Bentley, C., Edge Radiation in short-wavelength [extreme UV and X-ray] Free-Electron Laser using classical and quantum interference, *Proceedings of SPIE - The International Society for Optical Engineering* 3885, pp. 385-395, 2000

Alam, S., Bentley, C. Nonlinear model for a trapped ion interacting with a standing wave via gauge-like transformations *Chinese Journal of Physics* 37(1), pp. 44-50 1999

Alam, S., Bentley Jr., C. Considerations in short-wavelength [extreme-UV and x-ray] free-electron laser using quantum interference *Proceedings of SPIE - The International Society for Optical Engineering* 3343, pp. 701-714 1998
Open Access

S. Alam, and C. Bentley, "Equation for Nonlinear Optical Propagation Beyond the Paraxial Approximation," *SPIE Proceedings* 3418 (Optical Beam Characterization and Measurements), November 1998

S. Alam, and C. L. Bentley, Jr., "Model for Trapped Ion Interacting with Standing Wave via Gauge-Like Transformations," April 1998, Vol. 99 No. 4, *J. Progress of Theoretical Physics of Japan*, pp. 577-583.

S. Alam, and C. L. Bentley, Jr., "The Relevant Operators for the Generalized Time-Dependent m -Photon Jaynes-Cummings Hamiltonian," August 1997, Vol. 98 No. 2, *J. Progress of Theoretical Physics of Japan*.

Jiaren Liu, C.L. Bentley, Jr., "Spontaneous emission modification via quantum interference," The 28th Winter Colloquium on the Physics of Quantum Electronics in Snowbird, Utah, Jan. 1998.

Jiaren Liu, C.L. Bentley, Jr., "Calculation of Instantaneous Mandel Q Factor of Fully Quantum-Mechanical Resonance Fluorescence," The Summer Conference on Quantum Optics in Jackson Hole, Wyoming, August 1998.

Hu Huang, C.L. Bentley, Jr., and M.O. Scully. "Atom-Atom Correlation and the Limit of Mean Field Theory of Near Dipole-Dipole Interaction in a Dense Medium," *PVAMU E&A Symposium Proceedings*, Vol II, 1995, pp. 405-409.

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Additional Trainings/Skills:

SOLAR OBSERVATORY – Since February 2010, found success in solving dome maintenance problems, such as dome rotation shut-downs from motor stoppage, motor-gear to track misalignment from loose and bent track, relay-contacts corrosion, telescope array east-west, as well as north-south, panning stoppage from burned relay contacts, primary and secondary telescope alignment problems, vacuum system oil contamination problems, telescope vacuum-leak detection of problem from cracked primary telescope lens, solved long-standing primary telescope exit-window contamination problem. Gave numerous student tours of the observatory and conducted some student labs in the Dome until 2013. From 2013-2018, work as an investigator was done on setting up high resolution camera for telescope operation through Title III grant (Dr. Saganti-PI). Then since the Solar Observatory restoration which left numerous solar telescope and dome systems inoperable, I volunteered successfully to make all systems functional, which was a factor in the successful negotiations of Drs. Saganti and Erickson to get funding for the new \$ 10M Observatory. The new observatory was constructed three years ago.

SOME RESEARCH -- Research on the “Bentley atom” model to visually convey electron configuration and behavior for SPDF sub-shells other than by probability clouds. On November 18, 2009, I gave a talk at Prairie View to present some of my research results. The talk was entitled: “Bentley Atom: Precisely oriented electron elliptical orbits from Quantized angular momentum.” In 2022, a disclosure was submitted for patent and copyright considerations.

Collaborating Principal Investigator - TARP - Lasing without Population Inversion (1993-1995), Short Wavelength Lasing via Lasing without Inversion (1996-1998), and Electromagnetically induced transparency and lasing without inversion in rare-earth ions (2000-2002). From two experiments at Houston Advanced Research Center using a ladder atom medium spontaneous emission modification by quantum interference was observed for the first time.

INVITED GUEST SPEAKER –Mathematics Association of America Conference –Chicago- 07/29/2017 – My experiences as the first graduate student of Dr. J. Ernest Wilkins in honor of his legacy as a famous physicist and mathematician who started his career with a B.S. at age 13, M.S. at 17 and Ph.D. in physics at 19 from University of Chicago.