Short-Form Resume for Neil F. Chamberlain, Ph.D.

Current Position: Flight Communications Systems Section
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109

Background:

Communications	Telecommunications Systems Engineering; Relay Operations
Electromagnetics	Antenna Analysis, Design & Testing; Antenna Arrays; Microwave Engineering
Radar	Signal Processing; Polarimetry; Target Classification; Ground Penetrating Radar

Education:

M.S., Ph.D. (E.E.)	The Ohio State University ElectroScience Laboratory (ESL), Columbus, OH	1984, 1989
B.Sc. (E.E. with honors)	King's College, London University, UK	1981

Experience: *33 years post-PhD work in communications systems, antennas, and radar:*
19 years as a Senior Engineer with JPL's Flight Communications Systems Section
14 years as an educator at the South Dakota School of Mines & Technology (SDSM&T)

Senior Engineer	Flight Communications Systems Section, JPL, Pasadena, CA	2004 – present
	JPL Chief Telecom Engineer	4/22 – present
	Telecom & GPR Antenna Lead: CADRE Autonomous Lunar Rover Mission	2021– present
	RF Analyst: Europa REASON Instrument VHF and HF Antennas	2016 – 2022
	Product Delivery Manager: Deep Space Network RF-Optical Ground Station	2019 – 2021
	Task Manager: Trace Gas Orbiter Electra Relay Operations	2016 – 2021
	Task Manager: FINDER Heartbeat Detecting Radar	2015 – 2018
	Task Manager: MAVEN Electra Relay Operations	2011 – 2021
	Task Lead: DESDynI / NISAR Synthetic Aperture Radar Antenna	2009 – 2015
	Cognizant Engineer: Juno Microwave Radiometer Antennas	2007 – 2010
	Cognizant Engineer & Contract Technical Manager: UAVSAR Radar Antenna	2004 – 2008
	Cognizant Engineer: JPL / AFRL Space-Based Radar Antenna	2003 – 2005
NASA Faculty Fellow	Jet Propulsion Laboratory, Pasadena, CA	2002, 2003
Professor	Electrical and Computer Engineering Dept., SDSM&T, Rapid City, SD	1990 – 2003
President	Chamberlain Thompson Engineering Systems (ChTES) Inc.	1996 – 2000
Graduate & Post-Doctoral Researcher	The Ohio State University ElectroScience Laboratory, Columbus, OH Research in radar polarimetry, RCS measurements, radar target classification	1983 – 1989
Graduate Engineer	Marconi Space and Defence Systems, Portsmouth, UK	1981 – 1982

Selected Publications:

N. Chamberlain, et al	"Implementing Low-Density Parity-Check Codes in the Mars Relay Network", IEEE Aerospace Conference, Big Sky, MT	2022
with M. Mohageg, et al	"Telescope Metrology and Active Alignment for RF-Optical Hybrid Receiver", Proc. SPIE 11678, Free-Space Laser Communications XXXIII	2021
with N. Lay, et al	"On-board Wireless Communications for Spacecraft Test and Operations", IEEE Aerospace Conference, Big Sky, MT	2019
with Y. Rahmat-Samii, et al	"Enhancing Communications for Future Mars Rovers: Using high-performance circularly polarized patch subarrays for a dual-band direct-to-Earth link", IEEE APS Magazine	2018
N. Chamberlain, et al	A Dual-Polarized W-band Metal Patch Antenna Element for Phased Array Applications", IEEE APS Conference, Memphis, TN	2014
N. Chamberlain	"Transient Polarization" Proceedings of NATO Advanced Workshop on Direct and Inverse EM Imaging (invited monograph)	1992

Selected Funded Research:

JPL R&TD	"Deployable Antenna Technologies for Radars at Extreme Frequencies" (Co-I)	2022 – 23
JPL SURP	"Broadband Circularly Polarized Antenna Array for Mars Rover DTE" (PI)	2013
JPL Center Innovation	"All-Metal Dual-Polarized W-band Patch Element" (PI)	2012
JPL R&TD	"Compact 94-GHz Multi-beam Lens Antenna for Landing Radars" (PI)	2009
NSF SBIR Phase II	"Electronic Beam Steering for Ground Probing Radar" (under ChTES, Co-I)	1997

Selected Awards:

NASA Honor	"For development and flight implementation of low-density parity check during adaptive data rate relay sessions enabling a factor of 2 increase in Mars relay performance"	2022
NASA Honor	"For outstanding, innovative effort during the investigation of the MRO Relay Throughput Anomaly, resulting in a successful resolution"	2019
Major Space Act Award	"A Single-Layer, All-Metal Patch Antenna Element"	2012
Ohio State ESL	"Outstanding Dissertation"	1989

Patents:

Principal Inventor	Metal Patch Antenna, US Patent Number 8,169,371	2012

Professional:

Senior Member	Institute of Electrical and Electronic Engineers (member since 1986)