DAVID B. WEXLER, M.D., Ph.D.

David_Wexler@uml.edu Feb. 2025

Professional Interests:

General otolaryngology - medical and surgical care, medical education
Exploration of Space - aerospace medicine, geospace/space physics research

Education

University of Southern Queensland, Ph.D.	2020
Open University (UK), Certificate in Physics	2013
James Cook University, Masters in Astronomy	2011
Stanford University School of Medicine, M.D.	1985
Case Western Reserve University, B.A.	1980

Academic Appointments

Assistant Clinical Professor
Department of Otolaryngology-Head and Neck Surgery
University of Massachusetts Medical School

Assistant Research Professor
Space Science Laboratory
University of Massachusetts Lowell

Professional Society Memberships

Aerospace Medical Society
American Astronomical Society
Massachusetts Medical Society
Fellow, American Academy of Otolaryngology

Professional Experience, Part I: Medical

Postgraduate Clinical Training

Advanced training in Rhinology	2002
Nasal Dysfunction Clinic	
University of California, San Diego	
Resident Surgeon (Chief Resident '89-90)	1986-1990
Department of Otolaryngology/Head and Neck Surgery	
University of Iowa Hospitals and Clinics	
Assistant Resident Surgeon (Internship)	1985-1986
Department of Surgery	
University of Iowa Hospitals and Clinics	

Current Employment

Otolaryngology Specialist, 2021 - present
UMASS Marlborough ENT, Massachusetts

Prior Clinical Positions and Medical Staff Positions

Otolaryngologist, Baystate Medical Practices
Baystate Wing Hospital, Palmer, MA
(formerly UMASS Wing Hospital) 2008-2020
- Medical Executive Committee 2011-2020
- Credentials Committee 2015-2020
- Infection Control Committee 2014-2017

Chief, General Otolaryngology 2007-2008
UMASS Medical Center, Worcester, MA

Staff Otolaryngologist, Fallon Clinic, Worcester, MA 2004-2007

Senior Specialist Physician (tenured), Otolaryngology 1999-2004
Hillel Yaffe Medical Center, Hadera, Israel

Staff Physician, Otolaryngology 1998-2000
Meir Hospital, Kfar Saba, Israel

Private practice of Otolaryngology, Fort Worth, TX 1994-1998

Chief, Otolaryngology, Hill Air Force Base, UT 1992-1994

Chief, Otolaryngology, Carswell Air Force Base, TX 1990-1992

Medical Licensure and Certifications

Medical license, Commonwealth of Massachusetts 2003-present

Ministry of Health, State of Israel
Otolaryngology specialist certification 1999-present

Diplomate, ABO Sleep Medicine Subspecialty 2012
Diplomate, American Board of Sleep Medicine 1998
Diplomate, American Board of Otolaryngology 1990

Basic Life Support exp. 9/2026
Advanced Cardiac Life Support exp. 9/2026

FAA-designated Aviation Medical Examiner 2024

Military

Active Duty, U.S. Air Force, Major, Medical Corps. 1990-1994
USAF School of Aerospace Medicine, 1992
Primary Course in Flight Medicine
U.S. Meritorious Service Medal 1994
Air Force Commendation Medal 1992

Academic Activities, Teaching and Mentoring

Co-lead, ENT Team, Aerospace Medical Association ad hoc committee on Commercial Spaceflight Scoping Review of the literature	2023-
Research in progress - NASA/Johnson Space Center Evaluation of astronaut low-frequency hearing loss during spaceflight.	2023-
Preceptor for Doctorate Nurse Practitioner program University of Massachusetts Nursing School	2024-
Medical Student Preceptor in Otolaryngology Flexible Clinical Experiences OTO 300 University of Massachusetts Medical school	2021-2024
Preceptor in Otolaryngology for Internal Medicine/Family Practice Residents Baystate Medical Center, Springfield, MA	2016-2020
Clinical instruction for Physician Assistants and Medical Students and Medical Assistants Wing Hospital, Palmer, MA	2014-2020
NASA/JPL Solar System Ambassador (Community outreach)	2010-
Educational Policy Committee (EPC), University of Massachusetts Medical School	2007-2008
Medical Student Lectures in Otolaryngology	2007-2008

Research Position

1981-82 Research Assistant in Primate Sleep and Circadian Physiology, Department of Physiology and Biophysics, Harvard Medical School, Boston, MA

Medical Publications

1. Wexler DB and Moore-Ede MC (1984). Effects of a muramyl dipeptide on the circadian temperature and sleep-wake cycles of the squirrel monkey. A*merican Journal of Physiology* 247:R672-80.

2. Wexler DB and Moore-Ede MC (1985). Circadian Organization of the sleep-wake cycle in the squirrel monkey (Siamiri sciureus). *American Journal of Physiology* 248:R353-362.

3. Erny BD, Wexler DB and Moore-Ede MC (1985). Sleep-wake stages during the subjective night of the squirrel monkey. *Physiology and Behavior* 35:189-194.

4. Wexler DB and Morre-Ede MC (1986). Resychronization of sleep-wake and temperature cycles in the squirrel monkey following phase shifts of the light-dark cycle. *Aviation, Space and Environmental Medicine* 57:1144-1149.

5. Wexler DB Jiang J, Gray SD and Titze IR (1989). Fat-graft reconstruction of injured canine vocal folds. *Annals Otol Rhinol Laryngol*. 96: 668-672.

6. Wexler DB (1989). The caloric test in electronystagmography. *Ear, Nose and Throat Journal, ENT Technology Supplement,* September.
Errata 68:886.

7. Wexler DB, Fetter TW and Gantz BJ (1990). Vestibular schwannoma presenting with sudden facial paralysis. *Arch Otolaryngol Head Neck Surgery* 116:483-485.

8. Wexler DB, Mackie R and Archer SM (1991). Pathologic case presentation: Adenocarcinoma of the submandibular gland. Arch Otolaryngol Head Neck Surgery 117:560-562.

9. Wexler DB, Harker LA, Voots RJ and McCabe BF (1991). Monothermal caloric testing in patients with Meniere's disease. *Laryngoscope* 101:50-55.

10. Wexler DB, Gilbertson LG, Goel VK and Bardach J. (1992). Biomechanics of the rotation-advancement skin flap: experimental and theoretical studies. In: Bardach J. ed *Local Flaps and Free Skin Grafts in Head and Neck Reconstruction*. Chapter 5. Mosby Year-Book Inc. St. Louis.

11. Bauman NM, Kirby-Keyser LJ, Dolan KD, Wexler DB, McCabe BF and Bale JF (1994). Mondini Dysplasia and congenital cytomegalovirus infection. *Journal of Pediatrics* 142:71-8.

12. Wexler DB (1994). Nonlinearity of the Jongkees difference equation for vestibular hypofunction. *Otolaryngol Head Neck Surgery* 111:485-7.

13. Jiang JJ, Titze IR, Wexler DB and Gray SD (1994). Fundamental frequency and amplitude perturbations in reconstructed canine vocal cords. *Annals of Otol, Rhinol and Laryngology* 103:145-148.

14. Wexler DB (1996). Recovery after tonsillectomy: Electrodissection vs. sharp dissection techniques. *Otolaryngology-Head and Neck Surgery* 114:576-81.

15. Finkelstein Y, Wexler D, Berger G, Nachmany A, Shapiro-Feinberg M, Ophir D. (2000) Anatomical basis of Sleep-related Breathing Abnormalities in Children with Nasal Obstruction. *Archives Otolaryngol Head and Neck Surg* 126:593-600.

16. Wexler D, Berger G, DeRowe A, Ophir D (2001). Long-term histologic changes in inferior turbinates after laser treatment. *Otolaryngology-Head and Neck Surgery* 124:459-63.

17. Finkelstein Y, Wexler D, Berger G, Nachmany A, et al. (2001) Lateral and frontal cephalometric evaluation of patients with obstructive sleep apnea. *Layngoscope* 111:634-641.

18. Finkelstein Y, Wexler D, et al. (2002). Endoscopic Partial Adenoidectomy for Children with Submucous Cleft Palate. *Cleft Palate-Craniofacial J* 39:479-485.

19. Braverman I, Wexler D and Oren M. (2002) A novel mode of infection with Hepatitis B: penetrating bone fragments due to explosion of a suicide bomber. *IMAJ* 4:528-529.

20. Braverman I, Wexler D, Abu-Mouch S, Brandstetter Y, Oren M. (2003). Penetrating bone fragments in suicide bombings: a potential new mode of infection. In: Shemer J and Shoenfeld Y eds. *Terror and Medicine*. Pabst Science Publishers, Lengerich, Germany, pages 456-467.

21. Wexler D, Davidson T. (2004). The Nasal Valve: a review of the anatomy and physiology. *American Journal of Rhinology* 3:143-150.

22. Wexler D and Braverman, I. (2005). Partial Inferior Turbinectomy using the microdebrider. *Journal of Otolaryngology* 34(3):189-193.

23. Wexler D, Segal R and Kimbell J. (2005). Aerodynamic consequences of partial inferior turbinectomy: Computational fluid dynamics simulation. *Arch Otolaryngology-Head and Neck Surgery* 131:1102-1107.

24. Wexler D, Braverman I, Amar M. (2006). Histology of the nasal swell body (septal turbinate). *Otolaryngology-Head and Neck Surgery* 134:596-600.

25. Wexler, DB (2008). Frontal balloon sinuplasty via minitrephination. *Otolaryngology-Head and Neck Surgery* 139,156-158.

Professional Experience, Part II: Space Sciences

Training

National Radio Astronomy Observatory Single Dish Course 2011
Research Guest at MIT Haystack Observatory (part-time) 2014-2020
Ph.D. University of Southern Queensland, AU 2020
Dissertation: “On the Fluctuations of Electron Density and Magnetic Field in the Solar Mid-Corona: Spacecraft Radio Observations”

Advisors:
Stephan Marsden, Professor, University of Southern Queensland
Elizabeth Jensen, Planetary Science Institute
Joseph Hollweg, Professor, University of New Hampshire
Anatoly Efimov, Kotel’nikov Insititute for Radio Engineering/Russian Acad. Sci.

Teams and committees:

DSX Spacecraft studies of the Plasmasphere, high-power radio transmissions and radio diagnostics (2023-present)
Team Lead - Prof. Paul Song UMASS Lowell, Massachusetts

FETCH (Faraday Effect Tracker of Coronal and Heliospheric Structures), team member. (2021-2024)
Team lead - E. Jensen (Planetary Science Institute)
MOST Mission Director - N. Gopalswamy (NASA Heliophysics)
The FETCH instrument array is being developed as part of the Mutliview Observatory for Solar Terrestrial (MOST) science mission, to acquire interplanetary, cross-heliospheric spacecraft radio Faraday rotation observations across the Sun-Earth L4-L5 line and other inner heliospheric paths (See publications #26,27,30).

Middle Corona working group (2021-2023)
Leads: Matthew J. West and Dan Seaton/National Solar Observatory.
This group meets to formulate questions, concepts and nomenclature regarding the initial solar wind acceleration zone, approximately over heliocentric radial distances 1.5-6 solar radii. A foundational article to summarize the current state of knowledge and frontiers for new development in this understudied region of the corona was accomplished (see publication #29).

Reviewer for:
The Astrophysical Journal
Journal of Geophysical Research: Space Physics

Solar and Space Physics Publications

26. Gopalswamy, N., Christe, S., …. Wexler, D. B., et al. (2024). The Multiview Observatory for Solar Terrestrial Science (MOST). *J. Atmospheric and Solar-Terrestrial Physics*, 254:106165.

27. Wexler, D.B., Manchester, W.B., Jian, L.K., Wilson III, Lynn B., Gopalswamy, N., Song, P., Kooi, J.E., van der Holst,B., Jensen, E.A. (2023). Investigating a Solar Wind Stream Interaction Region using Interplanetary Spacecraft Radio Signals: A Magnetohydrodynamic Simulation Study. *The Astrophysical Journal*, 955:90 (13pp).

28. Song, P., Tu, J. and Wexler D. (2023). Formation of the Transition Region for the Quiet Sun. *The Astrophysical Journal,* 948(1), L4 (11 pp).

29. West, Matthew J., Seaton, Daniel B., Wexler, David B., et al. (2023). Defining the Middle Corona. *Solar Physics* 298:78.

30. Jensen E., Gopalswamy N., et al. (2023). The Faraday Effect Tracker of Coronal and Heliospheric Structures (FETCH) instrument. *Frontiers in Astronomy and Space Sciences 10*:1064069.

31. Wexler, D., Kooi J., Jensen E. and Song, P. (2022). Slow solar wind acceleration through the middle corona: Spacecraft radio studies. *Frontiers in Astronomy and Space Sciences* 9:1947875.

32. Kooi, J., Wexler, D., Jensen, E., Wood, B. (2022). Multipoint radio probe of the solar corona: The trans-coronal radio array fleet. *Frontiers in Astronomy and Space Sciences* 9:1026422.

33. Kooi, J.E., Wexler, D.B., Jensen, E.A., Kenny, M.N., Nieves-Chinchilla, T., Wilson III, L.B., Wood, B.E., Jian, L.K., Fung, S.F., Pevtsov, A., Gopalswamy, N., Manchester, W.B. (2022). Modern Faraday Rotation Studies to Probe the Solar Wind. *Frontiers in Astronomy and Space Sciences*, 9:841866.

34. Wexler, D.B. , Case, A. W. and Song, P. (2021). Alfven Speed Transition in the Solar Corona. *The Astrophysical Journal Letters,* 919(2), L33 (7 pp).

35. Wexler, D.B., Jensen, E.A. and Heiles, C. (2021). Middle-corona Magnetic Field Strength determined by Spacecraft Radio Faraday Rotation. *Research Notes of the American Astronomical Association*, 5:165.

36. Wexler, D., White, G. and Song, P. (2020). Locating the Alfvenic speed transition in the solar corona. *Research Notes of the American Astronomical Association*, 4:216.

37. Wexler, D., T. Imamura, A. Efimov, P. Song, L. Lukanina, H. Ando, E. Jensen, J. Vierinen, A. Coster (2020). Coronal electron density fluctuations inferred from Akatsuki spacecraft radio observations. *Solar Physics*, 295:111 (21pp).

38. Wexler, David B. Hollweg, J. V. Efimov, A. I. Lukanina, L. A. Coster, A. J. Jensen, E. A. (2019). Spacecraft Radio Frequency Fluctuations in the Corona: a Messenger-Helios Composite Study. *Astrophysical Journal, 871:202 (13 pp)*.

39. Wexler, D.B., Hollweg, J. V., Efimov, A.I., Song, P., Jensen, E.A., Lionello, R, Vierinen, J. and Coster, Anthea J. (2019). Radio occultation observations of the solar corona over 1.60-1.86 $R_{\odot}$: Faraday rotation and frequency shift analysis. *Journal of Geophysical Research - Space Physics, 124:7761-7777*.

40. Jensen, Elizabeth A., Heiles, Carl, Wexler, David, Kepley, Amanda A., Kuiper, Thomas, Bisi, Mario M., Domingue Lorin, Deborah, Kuiper, Elizabeth V., Vilas, Faith (2018). Plasma Interactions with the Space Environment in the Acceleration Region: Indications of CME-trailing Reconnection Regions. *Astrophysical Journal, Volume 861:118 (12 pp)*.

41. Efimov, A.I., Lukanina, L.A., Chashei, M.K., Bird, M.K., Patzold, M and Wexler, D. (2018). Velocity of the Inner Solar Wind from Coronal Sounding Experiments with Spacecraft. *Cosmic Research, 56:405-410*.

42. Wexler, D. B.; Jensen, E. A.; Hollweg, J. V.; Heiles, C.; Efimov, A. I.; Vierinen, J.; Coster, A. J. (2017). Faraday rotation fluctuations of MESSENGER radio signals through the equatorial lower corona near solar minimum. *Space Weather, Volume 15, Issue 2, pp. 310-324*.

43. Kobelski A., E. Jensen, D. Wexler, C. Heiles, A. Kepley, T. Kuiper, M. Bisi (2016). Measuring the Solar Magnetic Field with STEREO A Radio Transmissions: Faraday Rotation Observations using the 100m Green Bank Telescope. Ground-based Solar Observations in the Space Instrumentation Ear, ASP Conference Series, Vol 504. Ivan Dorotovic, Catherine E. Fischer and Manuela Temmer, eds. *Astronomical Society of the Pacific*.

Space Sciences Presentations:

Wexler D, Galkin I, Tu Jiannan, Song P. VLF Wave Transmission from a Space-Borne Dipole Antenna: Further Analysis of DSX High-Voltage Transmission Experiments. accepted for AGU Meeting, Dec. 2024.

Wexler, D., Jensen, E., Gopalswamy, N, et al. FETCH Concept: Investigating Quiescent and Transient Magnetic Structures in the Inner heliosphere using Faraday Rotation of Spacecraft Radio Signals.
AGU meeting, Dec 2021.

Wexler D., Lawhite, G. and Song, P. Radio meets the Parker Solar Probe: Locating the Solar Wind Alfven Speed Transition in the Corona. Oral presentation at the Radio heliophysics on-line meeting, 2021.

Wexler, D., Efimov, A., Jensen, E., et al. Solar Wind Acceleration through the Middle Corona: Spacecraft Radio Studies. On-line poster presentation at Heliophysics 2050 meeting, 2021.

Wexler, D. and Song, P. Mid-coronal magnetic field intensity: Transcoronal Spacecraft Radio Observations. On-line poster presentation at AGU 2020.

Wexler, D., T. Imamura, A. Efimov, P. Song, L. Lukanina, H. Ando, E. Jensen, J. Vierinen, A. Coster. Coronal electron density fluctuations inferred from Akatsuki spacecraft radio observations. Presented by remote conferencing: Interplanetary Scintillation Workshop, Arecibo Observatory, Puerto Rico, December 2019.

Wexler, David B. Hollweg, J. V. Efimov, A. I. Lukanina, L. A. Coster, A. J. Jensen, E. A. (2019).Spacecraft Radio Frequency Fluctuations in the Corona: a Messenger-Helios Composite Study.
Presented at: Solar Heliospheric and INterplanetary Environment (SHINE 2018), Proceedings of the conference held 30 July-3 August, 2018 in Cocoa Beach, FL, id.249 (2018shin.confE.249W).

Wexler, D.B., Hollweg, J. V., Efimov, A.I., Song, P., Jensen, E.A., Lionello, R, Vierinen, J. and Coster, Anthea J. Hybrid modeling of the lower corona using Faraday rotation observations and a MHD thermodynamic simulation. Presented at: American Astronomical Society, SPD meeting #48, id.301.02, 2017.
Wexler, D. B.; Jensen, E. A.; Hollweg, J. V.; Heiles, C.; Efimov, A. I.; Vierinen, J.; Coster, A. J. Faraday rotation fluctuations of MESSENGER radio signals through the equatorial lower corona near solar minimum. Presented at: Joint American Astronomical Society/American Geophysical Union Triennial Earth-Sun Summit, ID.203.24, ADS: 2015TESS….120324W, Indianapolis, 2015.