George Edward Yefchak

Work Address:
Agilent Technologies
5301 Stevens Creek Blvd., MS 4U-SB
Santa Clara, CA 95051
408-553-3893
George_Yefchak@agilent.com

Home Address:
1250 Fremont Street
San Jose, CA 95126
george@yefchak.com
www.yefchak.com

Born:

July 19, 1962, Wichita Falls, Texas, USA

Education:

1990 Ph. D. in Analytical Chemistry, Michigan State University (MSU)
1984 B.S. in Chemistry (minor in mathematics), University of Dayton (UD)

Skills:

- *Computer Programming:* Laboratory instrument control, data acquisition, and data analysis, with an emphasis on graphical user-interfaces, using C# and Python.
- *Calculations:* Mathematical analyses such as ion trajectory modeling and spectral deconvolution using C#, Python, SIMION, Mathcad, and Excel.
- *Instrumentation*: Design, construction, and operation of vacuum systems, ion-optics, detection, automation, and signal acquisition systems for scientific instruments.
- *Mass Spectrometry:* Simulation, construction, operation, and maintenance of a wide variety of time-of-flight mass spectrometer systems.
- *Computer Skills:* Microsoft Windows and Linux systems, Adobe suite applications including Photoshop, InDesign, and Illustrator, Microsoft Office suite applications including Word, Excel, and Access, web design with Dreamweaver, and video editing with Premiere Pro.
- *Presentations:* Effective writing and presentation styles, including web design and public speaking.

Current Position:

1992– Research Scientist. Agilent Technologies Mass Spectrometry Division (Previously Hewlett-Packard Laboratories, Hewlett Packard)

Past Positions:

1990–1992 Research Chemist. Meridian Instruments, Inc., Okemos, Michigan, *and* Adjunct Research Associate, Department of Biochemistry, Michigan State University
1984–1988 Teaching assistant. Various courses including senior physical chemistry lab, analytical lab and lecture, and freshman chemistry tutoring
1983–1984 Teaching assistant. Freshman chemistry labs, University of Dayton
1981–1982 Student Programmer. University of Dayton Research Institute

Honors:

1989 Walter and Margaret Yates Summer Scholarship (MSU)
1988 Federation of Analytical Chemistry and Spectroscopy Societies Student Award
1988 ACS Analytical Fellowship Honorable Mention
1988 College of Natural Science Fellowship (MSU)
1986 Merit-Level Teaching Assistant (MSU)
1983 ACS Undergraduate Award in Analytical Chemistry (UD)
1982 Zaidain Award for Outstanding Sophomore Chemistry Major (UD)
1981 CRC Press Achievement Award in Freshman Chemistry (UD)

Publications:

Papers

"Models for Mass-Independent Space and Energy Focusing in Time-of-Flight Mass Spectrometry", G. E. Yefchak, C. G. Enke, and J. F. Holland, *Int. J. Mass Spectrom. Ion Processes*, 1989, *87*, 313.

"Second-Order Space-Time Transfer Matrix of the Two-Stage Electrostatic Mirror", D. Ioanoviciu, G. E. Yefchak, and C. G. Enke, *Int. J. Mass Spectrom. Ion Processes*, 1989, *94*, 281.

"Mass Dependence of Time-Lag Focusing in Time-of-Flight Mass Spectrometry—An Analysis", E. D. Erickson, G. E. Yefchak, C. G. Enke, and J. F. Holland, *Int. J. Mass Spectrom. Ion Processes*, 1990, *97*, 87.

"Metastable Peak Shapes Induced by Internal Energy Release in Electrostatic Mirror Time-of-Flight Mass Spectrometers", D. Ioanoviciu, G. E. Yefchak, and C. G. Enke, *Int. J. Mass Spectrom. Ion Processes*, 1991, *104*, 83.

"Beam Deflection for Temporal Encoding in Time-of-Flight Mass Spectrometry", G. E. Yefchak, G. A. Schultz, J. Allison, and C. G. Enke, *J.A.S.M.S.*, 1990, *1*, 440.

"Analytic expression for non-linear ion extraction fields which yield ideal spatial focusing in time-of-flight mass spectrometry", C. A. Flory R. C. Taber, and G. E. Yefchak, *Int. J. Mass Spectrom. Ion Processes*, 1996, *152*, 169.

"Analytic expression for the ideal one-dimensional mirror potential yielding perfect energy focusing in TOF mass spectrometry", C. A. Flory R. C. Taber, and G. E. Yefchak, *Int. J. Mass Spectrom. Ion Processes*, 1996, *152*, 177.

"Improved Method for Designing a Cylindrical Zhang-Enke Ion Mirror", G. E. Yefchak and C. A. Flory, *Int. J. Mass Spectrom.*, 2002, *214*, 89.

"Identification of Compounds in Commercial Kava Extracts by Gas Chromatography with Electron Ionization High-Resolution Mass Spectrometry", V. Lopez-Avila and George Yefchak, *Open Anal. Chem. J.*, 2009, *3*, 22.

Oral Presentations (presenter)

"High Speed Analysis of Natural Gas and Refinery Gas with a Compact GC/TOFMS System", G. E. Yefchak, B. Prazen, and C. Myerholtz, Presented at the 45th ASMS Conference on Mass Spectrometry and Allied Topics, Santa Fe, N.M., June 2, 1997.

Oral Presentations

"Boosting workflow efficiency and productivity with instrument intelligence and smart automation", Emma Rennie, Huy Bui, Patrick Batoon, Christian Klein, James Pyke,

Li Sun, Haopeng Wang, George Yefchak, Presented at the 71st ASMS Conference on Mass Spectrometry and Allied Topics, Houston, TX, June, 2023.

Posters

"Analysis of Complex Mixtures using High-Speed Chromatography and Time-of-Flight Mass Spectrometery", R. Grix, G. E. Yefchak, B. D. Gardner, J. F. Holland, R. D. McLane, and C. G. Enke, Presented at the 12th International Mass Spectrometry Conference, Amsterdam, The Netherlands, August 26–30, 1991.

"Analysis of Complex Biological Samples by Gas Chromatography/Time-of-Flight Mass Spectrometry with Time-Array Detection", B. D. Gardner, J. A. Johnson, D. A. Gage, J. Allison, J. T. Watson, and G. E. Yefchak, Presented at the 40th ASMS Conference on Mass Spectrometry and Allied Topics, Washington D.C., May 31–June 5, 1992.

"Deconvolution of Gas Chromatography/Time-of-Flight Mass Spectrometric Data: A Potential Alternative to Two-Dimensional Gas Chromatography/Mass Spectrometry", R. D. McLane, P. R. Vlasak, C. G. Enke, G. E. Yefchak, P. A. Rodriguez, C. L. Eddy, M. A. Mazzone, and J. D. Pinkston, Presented at the 40th ASMS Conference on Mass Spectrometry and Allied Topics, Washington D.C., May 31–June 5, 1992.

"Use of GC-QTOF MS to Identify Unknown Compounds in Herbal Extracts", V. Lopez-Avila, A. P. Land, and G. Yefchak, Presented at the 57th ASMS Conference on Mass Spectrometry and Allied Topics, Philadelphia, PA., June 1, 2009

"Use of GC-QTOFMS to Identify Pesticide Residues in Complex Matrices", V. Lopez-Avila and G. Yefchak, Recent Advances in Food Analysis, 4-6 November, 2009, Prague, Czech Republic.

"Mass Spectral Fragmentation Studies of Heterocyclic Compounds using GC High-Resolution MS", V. Lopez-Avila and G. Yefchak, Presented at the 60th ASMS Conference on Mass Spectrometry and Allied Topics, Vancouver, B.C., Canada, May 22, 2012.

"Combination of Chemical Ionization (CI) and Low Electron Energy Ionization Capabilities with High-Resolution Time-of-Flight GC/MS", S. Nieto, V. Lopez-Avila, H. Prest, J. Kernan, G. Yefchak, R. Clark, N. Eno, J. Oppenheimer, and B. Russ, Presented at the 66th ASMS Conference on Mass Spectrometry and Allied Topics, San Diego, CA, June 3, 2018

Patents:

"Time-Compressed Chromatography in Mass Spectrometry" with C. G. Enke, J. F. Holland, and R. D. McLane. U.S. Patent #5,175,430, December 29, 1992.

"Time-of-Flight Mass Spectrometer with Post-Deflector Filter Assembly." U.S. Patent #6,369,384, April 9, 2002.

"Ion Packet Generation for Mass Spectrometer" with G. Li and C. Myerholtz. U.S. Patent #6,455,845, September 24, 2002.

"Pressure Measurement using Ion Beam Current in a Mass Spectrometer" U.S. Patent #6,627,874, September 30, 2003.

"Thermal Drift Compensation to Mass Calibration in Time-of-Flight Mass Spectrometry" with C. Myerholtz and G. Li. U.S. Patent #6,700,118, March 2, 2004.

"Methods and Apparatus for Introducing Liquids into Microfluidic Chambers" with P. W. Barth. U.S. Patent #6,843,281, January 18, 2005.

Defensive Publications:

"Multi-Ion Extension of Dynamic Range in Quantitative Mass Spectrometry", S. Kothari, V. Lopez-Avila, and G. Yefchak, Publication IPCOM000211483D

Professional Society Memberships:

American Society of Mass Spectrometry
American Chemical Society

Board Membership:

2013– Board of Directors, Nova Vista Symphony, Sunnyvale, California
2003–2010 Board of Directors, Redwood Symphony, Redwood City, California (member emeritus 2010–present)

Other Interests:

Music

- Principal Conductor of South Bay Philharmonic (known as the Hewlett-Packard Symphony Orchestra until 2009)
- Associate conductor with Nova Vista Symphony 2015–present Assistant conductor during the 2006–2007 season
- Music director for South Bay Musical Theatre's 2024 production of *No, No, Nanette*
- Music director for Bay Area Opera Collaborative's 2018 production of *The Pirates of Penzance*
- Frequent appearances with community orchestras and ensembles playing oboe, English horn, percussion, and piano

Web Design

Design and maintenance of a wide variety of web sites including www.bayop.org, www.southbayphilharmonic.org, and www.yefchak.com.

Typography

Design, layout, and production of newsletters, brochures, concert programs, advertising materials, and presentations.