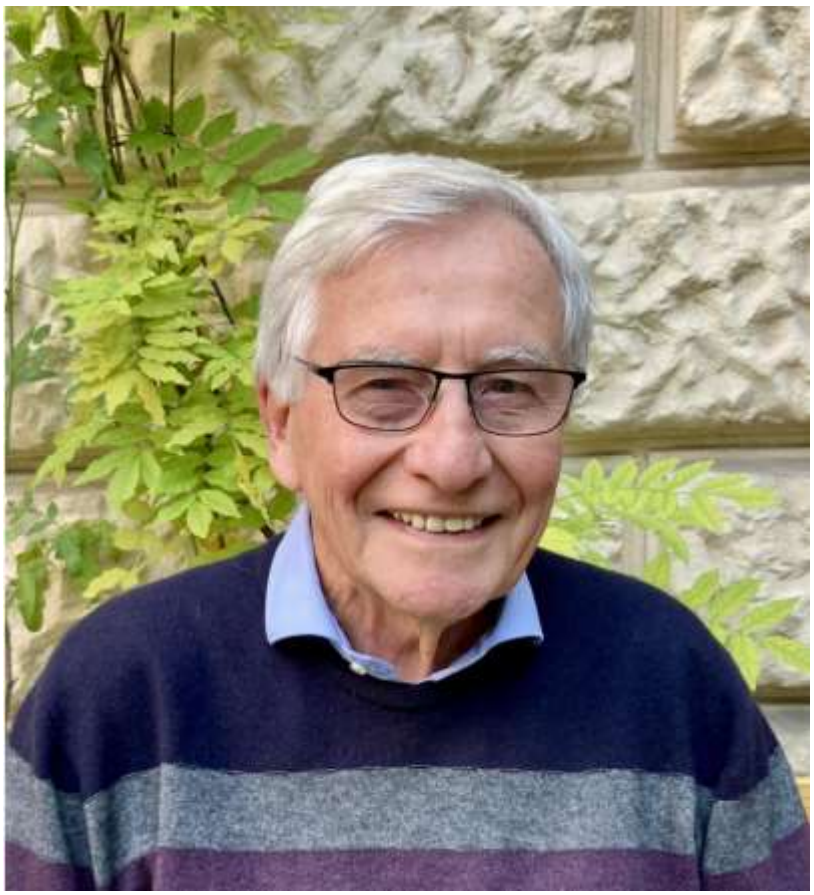
Curriculum Vitae of Professor Walter Kutschera



Walter Kutschera (credit Stephanie Adler, 2023)

1939	Born on 19 September 1939 in Vienna, Austria, Austrian citizen; married since 1962 to Dr. Gundl Kutschera, clinical psychologist and psychotherapist; three children: Joerg (1962), Peter (1964), Stefanie (1971)
1949-1957	High School (Realgymnasium) in Graz, Austria
1957-1960	Study of Technical Physics at the Technical University in Graz, Austria
1961-1965	Study of Experimental Physics at the University of Graz, Austria
1965	Ph.D. (Dr. phil.) in Experimental Physics from the University of Graz, Austria.
1965-1966	Mandatory military service in the Austrian Army (9 months, Bundesheer)
1966-1969	Visiting Scientist, Max Planck Institute for Nuclear Physics, Heidelberg, Research in nuclear physics in connection with heavy ion reactions and gamma-ray spectroscopy at the EN and MP tandem accelerators of the MPI in Heidelberg were performed.
1970-1978	Assistant Professor, Physics Department, Technical University Munich, Germany. Continuation of research in nuclear physics with accelerators and development of negative ion beams at the MP tandem laboratory of the LMU and TU Munich in Garching, Germany.
1973-1974	Research Fellow, Japan Society for the Promotion of Science, Physics Department, University of Tokyo, Japan.
1977	Habilitation in Experimental Physics, Technical University of Munich, Germany

1978-1985	Visiting and Staff Scientist, Physics Division, Argonne National Laboratory, Chicago, USA. Group leader of Accelerator Mass Spectrometry (AMS) at the ATLAS accelerator.
1982-2000	Collaborations on AMS experiments at the 14 UD Pelletron tandem accelerator of the Weizmann Institute of Science in Rehovot, Israel.
1985-1986	Visiting Professor, Physics Dept., Technical University of Munich, Germany.
1986-1993	Senior Scientist, Physics Division, Argonne National Laboratory, Chicago, USA. Group leader of AMS experiments at the ATLAS accelerator.
1990	Berman Visiting Professor, Hebrew University of Jerusalem, Israel.
1993-2007	Professor of Physics and Head of the Institute for Isotope Research and Nuclear Physics at the University of Vienna, Vienna, Austria.
1995-2012	Director of the Vienna Environmental Research Accelerator (VERA), a universal AMS facility based on a 3-MV Pelletron tandem accelerator at the University of Vienna.
2004-2006	Dean of the Faculty of Physics, University of Vienna
2006-2008	Vice Dean of the Faculty of Physics, University of Vienna
2008-present	Emeritus Professor of Physics at the University of Vienna

Awards

2007	Großes Silbernes Ehrenzeichen für Verdienste um die Republik Österreich
2010	Erwin Schrödinger Prize of the Austrian Academy of Sciences
2011	Fellow of the American Association for the Advancement of Science
2022	Honorary member of the Austrian Physical Society
2024	Honorary member of the Austrian Academy of Sciences

Research interests

After 10 years in experimental nuclear physics at tandem accelerators, my research focused since 1980 on the exploration of our world by means of the "isotope language" utilizing both long-lived radioisotopes (cosmogenic and anthropogenic) and stable isotopes. This research is performed with Accelerator Mass spectrometry (AMS) utilizing the long-lived radioisotopes ^{10}Be, ^{14}C, ^{26}Al, ^{36}Cl, ^{39}Ar, ^{41}Ca, ^{44}Ti, ^{55}Fe, ^{59}Ni, ^{60}Fe, ^{81}Kr, ^{126}Sn, ^{129}I, ^{182}Hf, ^{205}Pb, ^{210}Pb, ^{236}U, ^{244}Pu, and others. In this way, information on physical and chemical phenomena in the seven great domains of our environment at large (atmosphere, biosphere, hydrosphere, cryosphere, lithosphere, cosmosphere, technosphere) is gained.

Research fields touched so far: archaeology, art, atmospheric science, atomic and molecular physics, biomedicine, environmental physics, forensic medicine, Egyptology, geochronology, geomorphology, geophysics, glaciology, groundwater dating, nuclear astrophysics, nuclear physics, oceanography, paleoclimatology. In addition, external-beam PIXE (Proton Induced X-ray Emission analysis) was used at VERA to study the material composition of original silverpoint drawings of Albrecht Dürer (1471-1528).

Recently, my research focused on investigating the Egyptian chronology in the 2nd Millenium BC from ^{14}C dating and archaeology in the Nile delta, ^{14}C bomb peak dating of Human DNA, search for superheavy elements in terrestrial matter, and studies of the Iceman Ötzi and the glacial environment of the European Alps during the Holocene. My 40 years of involvement with AMS were summarized in 2023 in an article entitled "Atom counting with accelerator mass spectrometry" in Reviews of Modern Physics.

Selected publications

W. Kutschera, A. J. T. Jull, M. Paul, A. Wallner, *Atom counting with accelerator mass spectrometry*, Rev. Mod. Phys. 95 (2023) 035006-1 to 035006-63.

W. Kutschera, *The versatile uses of the ^{14}C bomb peak*, Radiocarbon, 64/6 (2022) 1295-1308.

W. Kutschera, *The half-life of ^{14}C – why is it so long?* Radiocarbon 61/5 (2019) 1135-1142.

R. Golser, W. Kutschera, *Twenty Years of VERA: Toward a universal facility for Accelerator Mass Spectrometry*, Nuclear Physics News, 27/3 (2017) 29-34.

G. Korschinek, W. Kutschera, *Mass spectrometric searches for superheavy elements in terrestrial matter*, Nucl. Phys. A 944 (1015) 190-203

A. Wallner, M. Bichler, B. Buczak, R. Dressler, L.K. Fifield, D. Schumann, J.H. Sterba, S.G. Tims, G. Wallner, W. Kutschera, *Settling the half-life of ^{60}Fe: Fundamental for a versatile astrophysical chronometer,* Phys. Rev. Lett. 114 (2015) 041101.

W. Kutschera, M. Bietak, E. M. Wild, C. Bronk Ramsey, M. Dee, R. Golser, Karin Kopetzky, P. Stadler, P. Steier, U. Thanheiser, F. Weninger *The chronology of Tell el-Daba: A crucial meeting point of ^{14}C dating, archaeology, and Egyptology in the 2nd millennium BC*, Radiocarbon **54**/3-4 (2012) 407-422