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ACADEMIC EDUCATION

- Physics student at the RWTH Aachen University (1984-1994)
- Summer Student at CERN (1998) "Diffractive Scattering in proton anti-proton Collisions at UA1"
- Diplom in Physics (1990): "Detection Possibilities for Solar and Cosmological Neutrinos" (sehr gut)
- Dr. rer.nat. in physics (1994): "Search for Radiative Neutralino Decays with the L3 Detector" (summa cum laude)

EMPLOYMENTS

- 1994-1996 Post-doc at the RWTH Aachen University
- 1996-1999 Research Scientist at the RWTH Aachen University
- 1999-2021 University of Oxford (Lecturer/Reader/Professor)
- 2002-2012 Director of Studies/stipendiary lecturer at several colleges (St. Catherine's College, St. Anne's College, University College)
- 2002-2021 Senior Scientist at the Rutherford Appleton Laboratory (joint appointment with the University of Oxford)
- 2012-2021 Rokkos-Clarendon Fellow at Pembroke College, Oxford
- Since 2021 Professor of Physics, Johannes Gutenberg-University Mainz & Fermilab

ACADEMIC HONOURS

- WE-Haereus prize for talk at DPG conference (1990)
- Borchers-Plakette for exceptional PhD Thesis (1994)
- Fellowship as Research Associate at CERN (1998)
- Reader in Physics at the University of Oxford (2006)
- Professor of Physics at the University of Oxford (2012)
- Master of Arts, University of Oxford (2013)
- Fellow of the Institute of Physics (2013)
- Breakthrough Prize in Fundamental Physics (2016)
- Kármán Fellow RWTH Aachen University (2017)
- Scientific Associate at CERN (2018)

SKILLS AND INTEREST

- Instrumentation/electronics for particle physics experiments
- Instrumentation for security applications
- Neutrino cross sections measurements
- Neutrino oscillation measurements
- Photon detection systems
- Calibration of electronics/detectors for particle physics experiments
- Project leadership

NATIONAL AND INTERNATIONAL LEADERSHIP

THE MINOS COLLABORATION

The MINOS experiment, located in the US at Fermilab and in Northern Minnesota, was one of the world leading experiments to measure neutrino oscillations. Prof. Weber led the UK-involvement in the experiment, contributed to the electronics and light readout system and pioneered the first precision measurement of neutrino oscillations.

- **Chair of the institutional board** (2004-2008)
- Member of the **Executive Committee** (2004-2012)
- **UK spokesperson** (2007-2012)
- **Co-coordinator** of the neutral current analysis group and beam systematics groups
- **Oxford Group leader** (since 1999). Built and lead successful group to participate in the MINOS experiment. Several of the former group members, who worked under his leadership, now hold academic positions in the UK, France or the US.

THE T2K COLLABORATION

The T2K experiment is a second-generation neutrino oscillation experiment and located in Japan. Prof. Weber substantially contributed to the design of the experiment. He led the development and construction of the near detector electronics.

- **UK electronics work package manager:** Production of near detector electronics.
- **Electronics Convener** Designed readout system for novel photon detection system (SiPMs) and coordinated the overall electronics integration of the experiment.
- **Member of the T2K Technical Board**
- **Member of the Convenors Group**, which is the scientific leadership of the experiment. It sets the overall direction of developments to coordinates the design and construction of the experiment.
- **Lead Cross Section Convener** Lead the effort of around 30 people to measure different neutrino cross sections using the T2K near detector complex in Japan.
- **Overall T2K Near Detector Co-Convener** in charge of organising and overseeing all aspects of the near detector analysis and operation.

LAGUNA-LBNO

This design study evaluated the options for a next generation neutrino oscillation experiment in Europe. Members of this EU funded design study and the American LBNE experiment have now formed the DUNE Collaboration.

- **Chair of the Institutional Board** (2011-14)

DUNE COLLABORATION

The world leading next generation neutrino oscillation experiment to measure CP violation and other neutrino properties

- **UK principal investigator and spokesperson** (2015-2021) in charge to deliver the £80M DUNE/LBNF/PIP-II program
- **Leader of the task force on beam optimisation** (2015-2017)
- **Co-convenor of the near detector design group** (2017-2020)
- **Co-leader of ND-GAr detector** (since 2020)
- **Chair of the Institute Board** (since 2021)

CERN NEUTRINO PLATFORM

- Coordinator of the collaborative efforts for the near detector design of the new generation of long baseline neutrino oscillation experiments (2017-2019)

SOLID COLLABORATION

Experiment to search for sterile neutrinos at the nuclear research reactor BR2 in Mole

- Developed patented technology for neutrino detection (2010-2014)
Weber, A., Shitov, Y., & Vacheret, A. (n.d.). PCT/GB2012/052097, Composite scintillator detector.
- **Oxford PI** (2015-2021)
- **Conference and publication board** (since 2015)

AM-OTECH/CLOUD COLLABORATION

Technology development to develop instrumentation to monitor nuclear reactors with neutrinos.

- Developing governance (2023)
- Mainz PI (since 2022)
- Software and simulations

RESEARCH COUNCIL STFC

The Science and Technology Facilities Council (STFC) is the main body funding particle physics research in the UK.

- **Member of PPAN in 2010.** The PPAN committee advises the research council on research strategy in astronomy, nuclear and particle physics, effectively deciding which research to fund over the entire program in particle physics, nuclear physics and astronomy.
- Member of STFC **Science Board** in 2011-2015. The Science Board is the main advisory body of STFC that advises the research council in all areas of its science program (astronomy, theory, particle and nuclear physics) and their facilities like ISI, Diamond, CLF, CERN and ESO.

REVIEWS AND CONFERENCE ORGANISATION

- Member of the COMET review committee (KEK, Japan)
- Invited to review Estonian Centre of Excellence
- Member of director's CD3 review of the LZ dark matter experiment
- Reviewer for several journals (ongoing)
- Member of the organising Committee of the UK HEP workshops
- Member of the scientific organising committee for NNN 2017, Nulnt 2014 & EPS HEP 2011
- Member of STFC review for Atlas Upgrade (2020/21)
- Member of LHCC advising CERN on the LHC experiments (since 2020)
- Member of STFC Committee to develop strategy for Particle Physics (2022)
- Member of the HyperK PAC (since 2022)

SELECTED TALKS

- BMBF Strategy Meeting, DESY, 2023, „DUNE“
- DPG Frühjahrs Tagung 2021, “Neutrino Oscillation Physics“, Hauptvortrag (invited main talk)
- IOP HEP Meeting 2021, invited talk, “Neutrino Physics“
- XXIX International Symposium on Lepton Photon Interactions at High Energies 2019, Toronto, “DUNE – Precision Neutrino Physics of the Future“
- Terrascale Detector Workshop 2019, Dresden, “The DUNE Near Detector“
- The Future of Particle Physics: A Quest for Guiding Principles, Karlsruhe 2018, “Experimental Overview of Neutrino Physics“ & “The DUNE experiment“
- CERN Seminar 2015, “First Anti-Neutrino Oscillation Results from T2K“
- VLVvT 2015, Roma, “Long Baseline Neutrino Oscillation Experiments“

- Solvay-Francqui Workshop on Neutrinos from reactors to the cosmos 2015, “Results from neutrino oscillation experiments”
- DPG Frühjahrstagung 2015, “Neutrino Oscillations – Quo Vadis?”, Hauptvortrag (invited main talk)
- TAUP 2014, Aachen, “Neutrinos – Present and Future”, summary talk
- FLASY 2014, Workshop on Flavour Symmetries, “T2K Experiment – Results & Prospects”
- ICFA Neutrino European Meeting 2014, “Europe in LBNE”
- HEP Forum Quarks and Leptons 2013, “Future of Neutrino Oscillations”
- DESY, public talk 2013, “Neutrinos die Kleinen Wechselgeister”
- TWEPP 2012, Topical Workshop on Electronics for Particle Physics Experiments, “Electronics for Neutrino Experiments”
- Neutrino Interaction Workshop 2012, “CP Violation with Laguna-LBNO”, and “CC-Inclusive Cross Section measured with T2K ND”
- ETC Workshop on neutrinos 2012, “Measuring Neutrino Oscillations with T2K”, and “How fast do neutrinos go?”

SELECTED PUBLICATIONS

1. Weber, A., & Sehgal L., “CVC and PCAC in neutrino lepton interactions”, Nucl. Phys. B 359 (1991) 262, [http://dx.doi.org/10.1016/0550-3213\(91\)90060-B](http://dx.doi.org/10.1016/0550-3213(91)90060-B).
2. Acciarri, M., et al., L3 collaboration, “Search for neutralinos in Z-decays”, Phys. Lett. B 350 (1995) 109, [http://dx.doi.org/10.1016/0370-2693\(95\)00260-R](http://dx.doi.org/10.1016/0370-2693(95)00260-R).
3. Acciarri, M., et al., L3 collaboration, “Measurements of mass, width and gauge couplings of the W boson at LEP”, Phys. Lett. B 413 (1997) 176, [http://dx.doi.org/10.1016/S0370-2693\(97\)01082-4](http://dx.doi.org/10.1016/S0370-2693(97)01082-4).
4. D. G. Michael, et al., MINOS Collaboration, “Observation of muon neutrino disappearance with the MINOS Detectors in the NuMI Neutrino Beam”. Phys. Rev. Lett., 97 (2006) 19180, <http://dx.doi.org/10.1103/PhysRevLett.97.191801>
5. Vacheret, A., Greenwood, S., Noy, M., Raymond, M., & Weber, A., “The front-end readout system for the T2K-ND280 detectors”. In IEEE Nuclear Science Symposium Conference Record Vol. 3 (2007) pp. 1984-1991, <http://dx.doi.org/10.1109/NSSMIC.2007.4436543>
6. Abe, K., et al., T2K Collaboration, “Measurement of the inclusive ν_μ charged current cross section on carbon in the near detector of the T2K experiment”, Phys. Rev. D 87 (2013) 092003, <http://dx.doi.org/10.1103/PhysRevD.87.092003>.
7. Abe, K., et al., T2K Collaboration. “Evidence of electron neutrino appearance in a muon neutrino beam”. Phys. Rev. D 88 (2013) 032002, <http://dx.doi.org/10.1103/PhysRevD.88.032002>
8. Y. Abreu, et al., SoLid Collaboration, “A novel segmented-scintillator antineutrino detector”, JINST 12 (2017), <http://dx.doi.org/10.1088/1748-0221/12/04/P04024>
9. K. Abe, et al., “The T2K Collaboration. Constraint on the matter–antimatter symmetry-violating phase in neutrino oscillations”. *Nature* **580**, 339–344 (2020), <https://doi.org/10.1038/s41586-020-2177-0>
10. A. Abed Abud et al., DUNE Collaboration, “Deep Underground Neutrino Experiment (DUNE) Near Detector Conceptual Design Report”, <https://doi.org/10.48550/arXiv.2103.13910>