



## Prof. Walter E. Thirring Professor of Theoretical Physics at the University of Vienna, Austria



### Most important awards, prizes and academies

*Awards:* Max Planck Medal; Eötvös Medal (1969); Schrödinger Prize of the ÖAW; Prize of the City of Vienna; Henri Poincaré Prize 2000 of the IAMP. *Academies:* Effective Member, Austrian Academy of Science (1973-); Honorary Member, Eötvös Physics Society; Leopoldina, DDR-Academy of Sciences (1975); Pontifical Academy of Sciences (1986); Honorary Member, Hungarian Academy of Sciences. *Honorary Degrees:* Comenius University.

### Summary of scientific research

In my scientific activity I have tried to achieve in the various branches of theoretical physics both intuitive simplicity and mathematical rigor. Although this goal cannot be reached every where there are instances where some non-trivial general principles can be deduced from fundamental laws. This applies in particular to our work (with E. Lieb) on the stability of matter and my studies on the thermodynamic behaviour of gravitating systems. I was also fascinated by the geometrical aspects of Einstein's theory of gravity and wanted to find out why and how it is that just this force determines the geometrical structure of the world. One can actually understand that it is the universal nature of gravity which causes its influence on geometry. However, the instances where

a more general understanding can be achieved are rare in the life of a scientist and most of it is struggle with details which appear to be not so important once a full understanding is gained.

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### Main publications

Thirring, W.E., On the Divergence of Perturbation Theory for Quantized Fields, *Helv. Phys. Acta*, 26, p. 33 (1953); Thirring, W.E., Zur freien Weglänge von Neutrinos (with Houtermans, F.G.), *Helv. Phys. Acta*, 27, p. 81 (1954); Thirring, W.E., Use of Causality Conditions in Quantum Theory (with Gell-Mann, M. and Goldberger, M.), *Phys. Rev.*, 95, p. 1612 (1954); Abstract *ibid.* p. 654; Thirring, W.E., A Soluble Relativistic Field Theory, *Ann. of Phys.*, 3, p. 91 (1958); Thirring, W.E., Lorentz-invariante Gravitationstheorien, *Fortschritte d. Physik*, Bd., (VII) 2, p. 79 (1959); Thirring, W.E., Three-Field Theory of Strong Interactions, *Nucl. Phys.*, 14, p. 565 (1959/60); Thirring, W.E., Triplet Model of Elementary Particles, *Acta Phys.*, Suppl. III (1966); Thirring, W.E., On the Mathematical Structure of the BCS-Model (with Wehrl, A.), *Commun. Math. Phys.*, 4, p. 303 (1967); Thirring, W.E., Systems with Negative Specific Heat, *Z. f. Phys.*, 235, p. 339 (1970); Thirring, W.E., Bound for the Kinetic Energy of Fermions Which Proves the Stability of Matter (with Lieb, E.H.), *Phys. Rev. Lett.*, 35, p. 687 (1975). Books: *A Course in Mathematical Physics*: vol. 1, *Classical Dynamical Systems*, Springer (New York, Wien, 1978); vol. 2, *Classical Field Theory*, Springer (New York, Wien, 1979, 1986); vol. 3, *Quantum Mechanics of Atoms and Molecules*, Springer (New York, Wien, 1981); vol. 4, *Quantum Mechanics of Large Systems*, Springer (New York, Wien, 1983); *On Science and Religion*, Kosmische Impressionen. Gottes Spuren in den Naturgesetzen, Molden (Wien, 2004); Thirring, W.E., *Cosmic Impressions, Traces of God in the Laws of Nature*, May 2007, pp. 208.