Curriculum Vitae

The holder of this website was born 1947 in *Dortmund* as Helmut Baumert, went with his family to Lüdenscheid and then in 1951 arrived in G*DR*[i] where he – after years in *Treuenbrietzen* – visited *the Carl-von-Ossietzky-Gymnasium* in *Berlin*, in a special class with emphasis on mathematical and physical training, connected with education as programmer in the nuclear power plant *Rheinsberg*[ii].

He studied physics, biophysics and population dynamics in *Dresden*, *Berlin* and *Novosibirsk* and participated in the soviet Mars project at *Moscow's Lomonossov* University. He did research at *Berlin's Weierstraß* Institute (WIAS) and at WIKO (Institute for Advanced Study, *Dahlem*).

Due to the existence of more than one people with the name *Helmut Baumert* in our globalized internet world, the holder of this website changed his business name to *Helmut Z. Baumert*, where the Z. is the initial of his mother's name, Ziegfeld.

Within a EU project[iii] at Hamburg's university he began studying turbulence in greater depth. Although occupied by teaching responsibilities and applied research[iv], this topic had conquered him deeply and led to the solution of a century problem: the determination of the asymptotic value of *von-Karman's constant*. This dimensionless number is relevant for the understanding of turbulent boundary layers of ships, airplanes *etc.* in the atmosphere, oceans, other waters and in industrial fluid and gas problems as well. For a hole century this number was taken as an enigma and its determination by theory as impossible – like other fundamental constants of nature, as well: e.g. the vacuum speed of light, c, the fine structure constant of matter, α, or *Newton's* gravity constant, G; they all are assumed to be exclusively quantifiable by observations[v] [vi]. Based on an infinitely high *Reynolds* number, the new theory of turbulence gives the expression $\kappa = 1/\sqrt{2 \times \pi}$, which not only agrees surprisingly well with the presently best observational estimate at *Princeton-Superpipe*[vii]: $\kappa = 0.40 \pm 0.02$; it exhibits even a certain degree of "beauty by simplicity" and might fuel hopes that also other fundamental constants of physics might sooner or later be explained via pure geometry, what even e. g. Albert Einstein thought possible (see Barrow 2002, Ch. 10).

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[i] along the analogous way like later Angela Merkel

[ii] Berlin section, computing center

[iii] Baumert *et al*. (Hg.) - *Marine Turbulence. Theories, Observations and Models. Results of the CARTUM Project.* CUP, 2005, 630 pp.

[iv] ICBM der Universität Oldenburg und HYDROMOD GbR in Wedel/Holst.

[v] Fritzsch - The Fundamental Constants. A mystery of Physics. World Scientific, 2009, 155 pp.

[vi] Barrow - The constants of Nature. The Numbers that Encode the Deepest Secrets of the Universe, Vintage Books, N.Y. 2002, 332 pp.

[vii] Bailey *et al*.: *Estimating the value of von Karman's constant in turbulent pipe flow*, JFM, Cambridge, DOI=10.1017/jfm.2014.208, vol. 749, p. 79–98, 2014