

Professor Juhani Koski (1947 – 2015)



Professor Juhani Koski passed away May 14, 2015 as a result of sudden seizure during his bird-watching activities to Oulu, Finland. Born in Kouvola, Finland on February 17, 1947, Juhani grew up in a family where his father was a managing director of a famous traditional Finnish accordion factory.

Juhani graduated Kouvola high school in 1966 and after serving his military service he went to a new-founded Tampere University of Technology (TUT) to start his education in Mechanical Engineering in 1967. Juhani earned his M.Sc. degree in 1973 and started as a design engineer at the Department for the Development of Aviation Industry founded to revive Finnish aircraft design by Valmet Oy and the Ministry of Trade and Industry.

Juhani started his postgraduate education at TUT working as a teaching assistant and focusing in his research on Solid Mechanics and Structural Optimization. According to Juhani's own words, the structural optimization research at TUT was founded when he started his Lic.Sc. research on the topic. Juhani told no good examples existed for the formulation of the multicriterion structural optimization problem at that time. Vital in regard to the problem formulation was to consider which quantities are suitable for measuring the economy and the performance of the structure. Juhani formulated a

multiobjective optimization problem for elastic stress limited trusses under multiple static loading conditions. The criteria to be minimized were the weight and some chosen nodal displacements of the structure. Juhani earned his Lic.Sc. degree in 1979 and his publication [1] was among the first few publications in the field of multicriterion structural optimization that was published in the late 1970's.

Juhani continued his research on multicriterion optimization of elastic trusses and published papers on the determination of the Pareto optimal set [2, 3] and the decision-making process aimed at finding the final design [4] earning his D.Sc. degree in 1984. The topic of the dissertation [5] was about bicriterion optimum design method for elastic trusses. The research work lead to publication of a text book *Multicriteria Design Optimization – Procedures and Applications* [11] with his opponents Professor H. Eschenauer and Professor A. Osyczka, a widely cited work that dealt with industrial applications in multicriteria design optimization.

Juhani's academic career started as a Lecturer at TUT in 1980-1986, continued as a Professor in Applied Mechanics at University of Oulu in 1986-89, back to TUT as an Associate Professor in Solid Mechanics in 1989-1993, and finally as an invited Professor in Solid Mechanics in 1993 until his retirement in 2010.

Juhani authored and co-authored numerous articles [6, 7, 8, 9, 10, 11, 12], which have appeared in books, professional journals, and conference proceedings. Juhani's most important contributions to the field were probably publications about defectiveness of the weighting method in multicriterion optimization of structures [6] and about norm methods and partial weighting in multicriterion optimization of structures [7].

With a group of researchers during a NATO ASI conference [12] held in Berchtesgaden, Germany, Juhani was founding the International Society for Structural and Multidisciplinary Optimization (ISSMO) in 1991. He served a member of the Editorial Board of the journal *Structural and Multidisciplinary Optimization* of the Society from the start until his death. He also was a frequent member of coordination and executive committees of national and international scientific conferences and societies, e.g., International Union of Theoretical and Applied Mechanics (IUTAM) and Finnish Association for Structural Mechanics.

Juhani was a former and a leader of a structural optimization research group at the Institute of Applied Mechanics and Optimization of TUT. One of his important contributions was the encouragement he gave to young researchers to join the worldwide optimization family by attending international conferences and workshops and to work together. Juhani had excellent knowledge of the engineering fundamentals which he passed onto his students thoroughly and in an unexpediteful manner. As a professor, Juhani emphasized co-operation with Finnish industry and encouraged students to introduce optimization procedures into the practical design problems initiated from industrial applications.

Juhani was an enthusiastic observer of wildlife, focusing on observation to birds as a recreational activity. Juhani had a worldwide network of birders with whom he had tours all around the world. Wherever in the world he was traveling for business Juhani always knew a place to hit and took his time for birding. Besides birds, Juhani enjoyed observing all kind of wild animals, particularly species that are hard to spot like snakes.

Juhani is survived by his wife Anu, together with whom they enjoyed going to traditional Finnish dance halls for dancing live music. While traveling, a favorite hobby

was pastry-sampling at local coffeehouses, and at home, preferably with coffee and music with his wife Anu and his friends.

A big group of friends and colleagues came to admire and benefit from his intelligence and his kindness, good judgment and thoroughness.

Petri Kere

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