



Karl Uno Ingard (known generally as K. Uno Ingard), a Fellow of the Acoustical Society of America and a former recipient of the Society's Biennial Award (1954) and of the Society's Gold Medal (1998), passed away on August 21, 2014, at the age of 93. He was one of the world's most eminent acousticians during the second half of the twentieth century,

and he excelled at theory, experimentation, and teaching. He made extensive contributions to physical acoustics, atmospheric acoustics, fluid dynamics, plasma physics, magnetohydrodynamics, and noise control.

Ingard was born in Gothenburg, Sweden, on February 24, 1921, graduated from the Tekniska Gymnasiet in Gothenburg, entered Chalmers Institute of Technology in 1940, and graduated as an electrical engineer in 1944. Following his graduation, he continued at Chalmers, working toward the degree of *Technologie Licentiate*.

His principal mentor, Olof Rydbeck, was inclined toward theory, but Ingard was put on experimental projects as well, and his interests broadened to a combination of both experiments and theory. Around that time, Per Bruel was setting up an acoustics laboratory at Chalmers, and Ingard worked in his laboratory, initiating his life-long interest in acoustics. It was there that Ingard invented the graphic level recorder, which was later commercially produced by Bruel and Kjaer.

Ingard was attracted to MIT for his doctorate partly because of two books by Philip McCord Morse and partly because, as an aftermath of WWII research activities, MIT had established a relatively large research laboratory in acoustics. Although Morse had moved on to interests other than acoustics, Ingard struck up a life-long close acquaintance with Morse, probably initiated by his pointing out to Morse various errors in *Vibration and Sound* (Morse, 1948). Morse was so impressed that he enlisted Ingard to go through and critique the extensive notes and manuscripts of what was eventually to become the two-volume treatise, *Methods of Theoretical Physics* (Morse and Feshbach, 1953).

Ingard's doctoral thesis, "Scattering and Absorption by Acoustics Resonators," was primarily devoted to experiment and was done under the supervision of Richard H. Bolt. Af-

ter finishing his doctoral work in 1950, Ingard became an assistant professor of physics at MIT, where he remained until he retired in 1991 from his positions as professor of physics and of aeronautics/astronautics.

Ingard's extensive research achievements are extremely varied and difficult to summarize in a short account, but many of his numerous papers have been extensively cited through the years and have influenced the research of many others. It is perhaps fair to say that Ingard achieved an insight into engineering acoustics and physics-related acoustics greater than any of his contemporaries.

An undergraduate thesis was required of all physics students at MIT and the intrinsic appeal and breadth of Ingard's research interests, along with the high regard for his teaching, led to his directing a large number of undergraduate theses. Many of the students who wrote bachelor's theses with Ingard went on to become prominent in acoustics. More than 36 students wrote doctoral dissertations under Ingard's supervision, including several who went on to achieve special eminence in the Acoustical Society: Ira Dyer (President, 1997–87; Gold Medal, 1996), Richard H. Lyon (President, 1993–94; Gold Medal, 2003), and George Maling (Silver Medal in Noise, 1992).

Ingard's legacy in acoustics is huge. His many papers and books will long continue to be consulted and cited, and those who knew him will long cherish their memories of conversations they had with him and of the excellent lectures they heard him give.

The portrait accompanying this account was painted by Doris Ingard, Uno's wife.

References and Selected Publications by Uno Ingard

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- Morse, P. M., and Ingard, K. U. (1987). *Theoretical Acoustics*. Princeton University Press, Princeton.

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