

## Obituary

### Oswald Jozef Leroy, 1936–2022

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**Oswald Jozef Leroy**, Fellow of the Acoustical Society of America; Doctor Honoris Causa of the University of Gdansk, Poland; winner of the “Médaille Étrangère” of the

French Acoustical Society; and emeritus professor of the Catholic University of Leuven, Belgium, passed away on September 7, 2022, at Ostend, Belgium, at the age of 86.

Born in Passendale, West Flanders, Belgium, on May 16, 1936, Oswald lived his entire life around Kortrijk in West Flanders. His work in theoretical acousto-optics earned him a reputation as a prominent figure in the field of mathematics in Belgium.

Oswald’s most significant accomplishment was a theoretical investigation of the interaction of light with two neighboring ultrasonic beams under diverse situations in terms of beamform, frequency content, and intensity. This research was conducted under a variety of different circumstances. In the 1970s, when new acousto-optic devices were being created, mainly due to fresh breakthroughs in laser technology, it was crucial to have a solid understanding of this phenomenon. These devices made use of neighboring ultrasonic beams. Optical modulators, optical scanners, information processing, optical filtering, and frequency-spectrum analysis all used these devices. Before Oswald made his contribution, the sole known phenomenon was the interaction of light with a single ultrasonic beam. Since that time, acousto-optic devices have been used in various fields, including the military and the field of communications.

Diffraction of light by ultrasound, Oswald’s dissertation for his doctoral work at Ghent University, Belgium, earned him the degree of Doctor of Philosophy. Between 1966 and 1972, he held the position of assistant professor at Ghent University. Since 1972, he was a professor at the Catholic University of Leuven (KULeuven). While a member of the Department of Astrophysics, he took a

position as a professor at this university’s satellite campus in Kortrijk (KULAK). Advances in laser physics provided the impetus for partnerships between his team and various other laboratories. He has been a visiting professor at the Paris Diderot University and the Université de Bordeaux, France; the University of Tennessee, Knoxville; and the Tokyo Institute of Technology, Japan. Furthermore, he has collaborated with the University of Gdansk, Georgetown University, Washington, DC, and the University of Houston, Texas. He retired in 2001.

Oswald received an honorary doctorate from the University of Gdansk in 1991 for his contributions to theoretical acousto-optics and to celebrate a collaboration with the team of Antoni Sliwinski at the Institute of Physics. In 2015, Oswald Leroy was presented with a token of gratitude from the International Congress on Ultrasonics, which was co-organized by the French Acoustical Society, for his illustrious career and, in particular, for the warmth and friendliness that he had always shared with the entire acoustics and ultrasonics communities.

Oswald is survived by his wife Agnes Laperre, three children, and eleven grandchildren.

#### **Selected Publications by Oswald Jozef Leroy**

- Leroy, O., and Mertens, R. (1972). Diffraction of light by adjacent parallel ultrasonic waves with arbitrary frequencies (NOA Method). *Acta Acustica united with Acustica* 26(2), 96-102.
- Leroy, O., and Mertens, R. A. (1992). Theoretical acousto-optics in Belgium. *Optical Engineering* 31, 2048-2061.
- Leroy, O., and Shkerdin, G. N. (1991). The mode method in the theory of acoustic wave diffraction on division boundaries between different structures. In Leroy, O., and Breazeale, M. A. (Eds.), *Physical Acoustics: Fundamentals and Applications*. Springer New York, NY, pp. 451-456.
- Leroy, O., Sliwinski, A., Kwiek, P., and Markiewicz, A. (1982). Diffraction of light by adjacent fundamental and 2nd or 4th harmonic ultrasound beams: Comparison of exact and simplified formulas with experiment. *Ultrasonics* 20, 135-141.

#### **Written by**

**Nico F. Declercq** declercq@gatech.edu  
*Georgia Institute of Technology, Atlanta*