



## ISCA Medal for Scientific Achievement

The ISCA Medal for Scientific Achievement 2017 will be awarded to Professor Fumitada Itakura by the President of ISCA during the opening ceremony.



**Fumitada Itakura**

Nagoya University, Japan

*Monday, 21 August, 9:45–10:15, Aula Magna*

### Biography

Fumitada Itakura was born in Toyokawa, in Japan, in August 1940. He studied electronic engineering at Nagoya University, 1958–1963. He advanced to its graduate school and studied information engineering with topics such as statistical optical character recognition and time series analysis of cardiac rhythmicity. After finishing his master's degree in 1965, he worked on speech signal processing using a statistical approach. He received his doctorate in engineering from Nagoya University in 1971 for his work on a statistical method for speech analysis and synthesis.

Itakura's early work on speech spectral envelope and formant estimation using the maximum likelihood methods (1967) laid the groundwork for much of the research in speech signal processing in the three subsequent decades, ranging from vocoder designs for low bit-rate transmission to distance measures (Itakura-Saito distance) for speech pattern recognition. He introduced the concepts of the auto-regressive model and the partial auto-correlation to the speech area and developed the first mathematically tractable formulation of the speech recognition problem based on the minimum prediction residual principle, providing a solid framework for integrating speech analysis, representation, and pattern matching into a complete engineering system. His work on autoregressive modeling of speech is used in almost every low-to-medium bit rate speech transmission system. The Line Spectral Pair (LSP) representation, which he developed in the 1975, is now used in nearly every cellular phone system and handset. Itakura and Hong Wang's recent work in sub-band dereverberation algorithms has also become the foundation for many new breakthroughs. His singular and yet broad contributions to speech signal processing earned him the IEEE Morris Liebmann Award in 1986, the most prestigious Society Award from the IEEE Signal Processing Society in 1996, IEEE Fellow in 2003, the Purple Ribbon Medal from the Japanese government in 2003 and the Distinguished Achievement and Contributions Award from IEICE in 2003. These technical achievements were accomplished mainly at Nagoya University (1965–1968, 1983–2003), the fourth research section of Musashino Electrical Communication Laboratory of NTT (1963–1973, 1975–1983), Acoustic Research Laboratory of Bell Telephone Laboratories, Murray Hill (1973–1975), and Meijo University (2003–2011).