中国科学院数学与系统科学研究院杰出研究员讲座
中国科学院国家数学与交叉科学中心综合论坛

题　目：From Sequential Decoding to Polar Coding: A Computational Perspective

报告人：Erdal Arıkan

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主持人：马志明院士

时　间：2025年2月18日（周二）9:30-10:30

地　点：数学院南楼N204

摘要： This presentation traces the origins of polar coding to sequential decoding, a decoding algorithm for tree codes. Sequential decoding is a depth-first tree search method that becomes intractable at rates above a computational cutoff rate. We examine the computational complexity of sequential decoding and explain how polar coding emerged from efforts to reorganize the tree search to extend the cutoff rate.

报告人简介： Prof. Erdal Arıkan received his S.M. and Ph.D. degrees in electrical engineering from the Massachusetts Institute of Technology in 1982 and 1985 respectively. He was an Assistant Professor at the University of Illinois, Urbana-Champaign, before joining Bilkent University in 1987, where he is currently Professor of Electrical and Electronics Engineering.

Prof. Arıkan's research interests are in the areas of information theory and coding and communication systems. In 2008, he invented polar codes, a system of coding that provides a mathematical basis for the solution of Shannon's channel capacity problem.

Prof. Arıkan received the 2010 IEEE Information Theory Society Best Paper Award, the 2013 IEEE W. R. G. Baker Award and the 2018 IEEE Richard W. Hamming Award for his work on polar coding. In 2018, Huawei presented a special award to Prof. Arikan in recognition of his outstanding contribution to the development of communications technology. He was also the recipient of the 2019 Claude E. Shannon Award of IEEE Information Theory Society. He has been an IEEE Fellow since 2012.