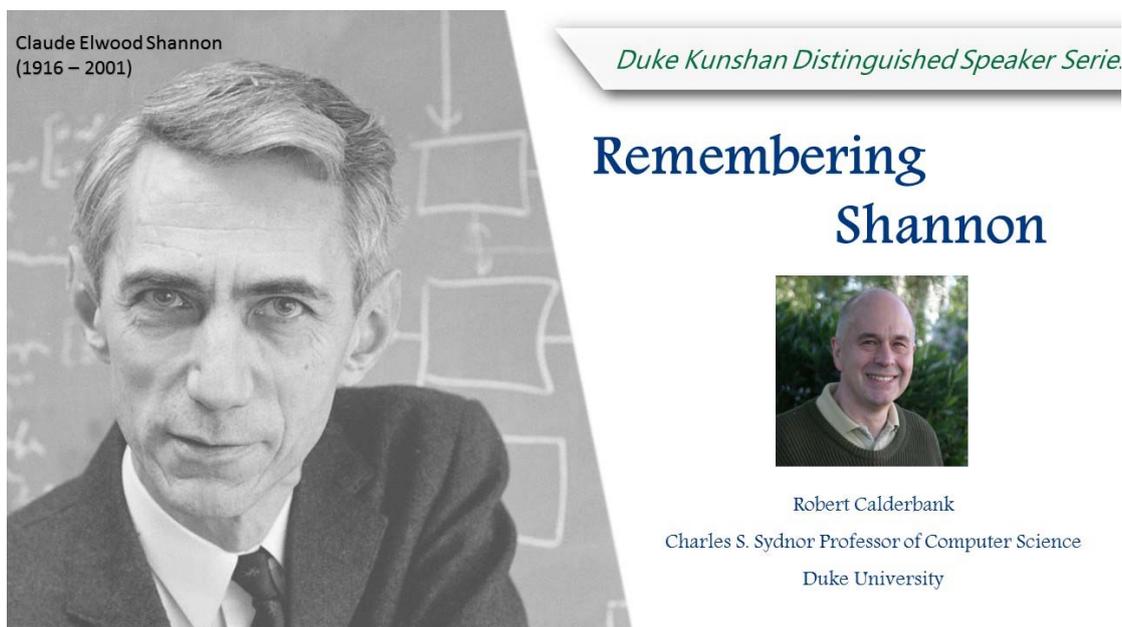


# 活动邀请 | 昆山杜克大学名家讲坛：“铭记香农”

Duke Kunshan Distinguished Speaker Series | “Remembering Shannon” by Professor Robert Calderbank



Claude Elwood Shannon  
(1916 – 2001)

*Duke Kunshan Distinguished Speaker Series*

## Remembering Shannon



Robert Calderbank  
Charles S. Sydnor Professor of Computer Science  
Duke University

## “铭记香农” —— Robert Calderbank 教授

杜克大学计算机科学讲席教授

美国国家工程院院士

## Duke Kunshan Distinguished Speaker Series

“Remembering Shannon” by Professor Robert Calderbank

Charles S. Sydnor Professor of Computer Science, Duke University

Academician of the United States National Academy of Engineering

**Time:** December 13, 2:30-3:30 PM

12月13日下午2:30-3:30点

**Location:** RM1079, Academic Building

昆山杜克大学学术楼 1079 教室

**Language:** English

演讲语言：英文演讲

**RSVP Link/报名链接:** [https://duke.qualtrics.com/SE/?SID=SV\\_4Vdds1heRmkgEvz](https://duke.qualtrics.com/SE/?SID=SV_4Vdds1heRmkgEvz)

*\*Kindly be noted that we'll not send confirmations. Once you registered, we'll reserve a seat for you. Thanks.*

*\*请注意：我们将会为注册者保留座位，不会有确认信。*

## Talk Abstract

The foundation of our Information Age is the transformation of speech, audio, images and video into digital content, and the man who started the digital revolution was Claude Shannon. He arrived at the revolutionary idea of digital representation by sampling the information source at an appropriate rate, and converting the samples to a bit stream. He then characterized the source by a single number, the entropy, which quantifies the information content of the source, and he created coding theory, by introducing redundancy into the digital representation to protect against corruption.

Shannon started from the grand challenges of his day, he developed models that captured what made them so difficult, translated these challenges into mathematical terms and then developed fundamental limits. This talk will review some of what Shannon did, and it will speculate about what he might have done if he were among us today.

将语音、音频、图像以及视频转化成数字内容是信息时代的基础，数字革命的发起者正是克劳德·香农。

他将信息源以适当的频率取样，再将样品转化成位流，从而产生了这一革命性的数字表示法。接着他

又用一个数字和信息熵标记信息源以数量化信息。他创建了编码理论，将冗余（多余度）引入数字表示法以防止信息传输出错。本讲座将回顾香农的贡献，畅想香农若生在当代，他将如何表现。

## Speaker Introduction

Robert Calderbank is Director of the Information Initiative at Duke (IID) and the Charles S. Sydnor Professor of Computer Science. He joined Duke in 2010, completed a 3-year term as Dean of Natural Sciences in August 2013 and also served as Intern Director of the Duke Initiative in Innovation and Entrepreneurship in 2012. Before joining Duke he was Professor of Electrical Engineering and Mathematics at Princeton University where he also directed the Program in Applied and Computational Mathematics. Prior to joining Princeton in 2004, he was vice president for research and Internet and Network Systems at AT&T, responsible for one of the first industrial research labs to focus on "big data."

Calderbank has been named the 2015 recipient of the Claude E. Shannon Award by the IEEE(Institute of Electrical and Electronics Engineers) Information Theory Society, which reflects the fundamental role he's played in communications, with many of his algorithms in use in mobile phone and internet communications today.

He is a two-time winner of the IEEE Information Theory Prize Paper award in 1995 and 1999. While at Bell Labs, he co-discovered space-time coding. In 2005, Calderbank was elected to the US National Academy of Engineering, became a fellow of the American Mathematical Society in 2012 and has been awarded the 2013 Richard W. Hamming Medal from the IEEE. He was cited for his "fundamental contributions to coding theory that impacted voice-band modems and wireless communication."

Robert Calderbank 教授是杜克大学信息应用中心(IDD)主任，查尔斯·S·西德诺计算机科学讲席教授。他于 2010 年加入杜克大学，2010 至 2013 年担任自然科学学院院长。Calderbank 在 2004 至 2010 年间在普林斯顿任教，负责应用和计算数学项目。在加入普林斯顿之前，他是 AT&T 研发、互联网及网络系统副主席，领导了首个大数据工业试验室。

2005 年，Calderbank 教授被选为美国国家工程院院士，2012 年成为美国数学学会会员。他于 1995 年和 1999 年两次获得电气与电子工程师协会(IEEE)信息理论论文奖，并于 2013 年获得理查德 W.汉明奖。在贝尔实验室工作时，他是时空编码的共同发现者之一。2015 年 Calderbank 被 IEEE 授予克劳德 E.香农奖，以表彰他在通讯领

域做出的基础性贡献。现今他所开发的算法广泛应用于移动终端和网络通讯领域。

Duke Kunshan University

2016/11/29