As has become quite clear from recent headlines, the ubiquity of technologies such as wireless communications and on-line data repositories has created new challenges in information security and privacy. Information theory provides fundamental limits that can guide the development of methods for addressing these challenges. After a brief historical account of the use of information theory to characterize secrecy, this talk will review two areas to which these ideas have been applied successfully: wireless physical layer security, which examines the ability of the physical properties of the radio channel to provide confidentiality in data transmission; and utility-privacy tradeoffs of data sources, which quantify the balance between the protection of private information contained in such sources and the provision of measurable benefits to legitimate users of them. Several potential applications of these ideas will also be discussed.

**H. Vincent Poor** is Dean of the School of Engineering and Applied Science at Princeton University, where he is also the Michael Henry Strater University Professor of Electrical Engineering. His research interests are primarily in the area of wireless networks and related fields. Among his publications is the recent book Principles of Cognitive Radio (Cambridge University Press, 2013). Dr. Poor is a member of the National Academy of Engineering and the National Academy of Sciences, and is a foreign member of the Royal Society. Recent recognition of his work includes the 2014 URSI Booker Gold Medal, and honorary doctorates from several universities in Asia and Europe.