

## Institute for Mathematical Sciences Distinguished Visitor Lecture Series



### **GUNTHER UHLMANN**

**University of Washington and  
HKUST Jockey Club Institute for Advanced Study**

Professor Gunther Uhlmann's research concentrates on inverse problems and cloaking. He has done pioneer work on the Calderón of determining the conductivity of an object by making voltage and current measurements at the boundary. He has also pioneered the method of transformation optics to achieve invisibility. This leads to a proposal on how to build Harry Potter's cloak.

Prof. Uhlmann received his PhD in 1976 from the Massachusetts Institute of Technology. He has been Walker Family Endowed Professor in Mathematics at the University of Washington since 2006, and is also Si-Yuan Professor at the Institute for Advanced Studies at the Hong Kong University of Science and Technology since 2014.

Prof. Uhlmann is Fellow of the American Mathematical Society, named a Finland Distinguished Professor (2013), Rothschild Distinguished Visiting Fellow at the Isaac Newton Institute of Mathematical Sciences (2011) and Chair of Excellence (2012) of the Fondation Sciences Mathématiques de Paris. He is also Member of American Academy of Arts and Sciences and Foreign Member of the Finnish Academy of Sciences. In 2011, he was awarded the Bôcher Memorial Prize by the American Mathematical Society and the Kleinman Prize by the Society of Industrial and Applied Mathematics. In 2017, he received the Solomon Lefschetz Medal by the Mathematical Council of the Americas. He is on the editorial boards of many mathematical journals, including Inverse Problems and Imaging and Analysis and PDE.

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## **Inverse Problems in Wave Propagation**

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**13 August 2018, Monday  
10.30am – 11.30am  
Lecture Theatre 5  
Faculty of Engineering  
National University of Singapore  
1 Engineering Drive 2  
Singapore 1175761**

### **Abstract**

We will describe a general method to solve inverse problems arising in non-linear wave propagation. In particular this method can be applied to Einstein's equations coupled with matter fields, the Einstein-Maxwell equations and also inverse problems for non-linear elastic materials.