

# Nanyang Technological University

Republic of Singapore



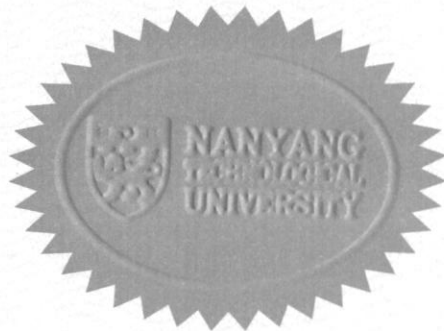
It is hereby certified that

***Sumanta Bose***

having satisfied the requirements of the University,  
was conferred the degree of

***Doctor of Philosophy***

on *21 March 2018.*



*Sudra Surash*

President

*Chen Kwong Lok*

Registrar