

Mechanism Design for Electric Vehicle Charging

講演者：Enrico Gerding 氏

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The rapid proliferation of electric vehicles (EVs) will place considerable strains on local electricity distribution networks. To mitigate this, appropriate scheduling mechanisms need to be designed, which balance the load on the network, whilst ensuring that drivers receive the charge they need. However, such scheduling mechanisms can be conducive to strategic behaviour, where drivers may attempt to manipulate the mechanism to their own advantage, for example by overstating their requirements or by lying about their availability for charging. In this talk, we will discuss how techniques from the field of online mechanism design can be utilised to design highly efficient charging mechanisms that are dominant strategy incentive compatible (i.e., where participants maximise their utility by stating their requirements truthfully). In particular, we will describe mechanisms for two settings: (1) a setting with plug-in hybrid vehicles, where the drivers' value for charging is marginally non-increasing, and (2) a setting with pure electric vehicles, where their value displays strong complementarities. We will conclude the talk by discussing how non-expert drivers can interact with such charging mechanisms.

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場所：19号館2階202号室

Dr Enrico Gerding is a lecturer in the School of Electronics and Computer Science at the University of Southampton, UK. He did his PhD research at the Centre of Mathematics and Computer Science (CWI) in the Netherlands on the topic of automated negotiation. In addition to negotiation, the current focus of his research is on mechanism design and its application to real-world allocation problems such as grid computing, online advertising, and the smart grid (specifically electric vehicle charging). He is also interested in computational finance. Dr Gerding has been the organiser of several workshops and he has held senior positions at AAMAS, including SPC, scholarship chair and chair of the doctoral mentoring consortium.



Dr Sebastian Stein completed his PhD on flexible service provisioning at the University of Southampton, UK, in 2008. Since 2012 he has been a lecturer in the School of Electronics and Computer Science at Southampton. He is interested in algorithms and incentive engineering for complex multi-agent systems, and he has applied his work to problems in cloud computing, the smart grid, social networks, crowdsourcing and human mobility modelling. He was an organiser of the AMEC workshop from 2011 to 2013.

