

SESSION 8 – TAPA II Plenary Session II
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Friday, June 18, 8:35 a.m.

Chairpersons: Bruce Gieseke, AMD  
Tadahiro Kuroda, Keio University

**8.1 — 8:35 a.m.**

**The World's Smallest RFID  $\mu$ -Chip, Bringing About New Business and Lifestyles, Ryo Imura, Hitachi**

The Mu-chip, an RFID (Radio-Frequency IDentification) storing a unique 128-bits ROM ID code has been developed for use in a reliable authentication through a network based secure ID management. Its extremely small size, only 0.4mm x 0.4mm and 60 micron thick enables so many applications, even for thin paper media such as labels and ID-cards. Its unique ID numbers written without duplication during the fabrication cannot be changed, and thus can be used for secure identification of products. The system solution using Mu-chip leads to multiple secure solutions in business and lifestyle, and innovating manufacturing, tracking & tracing, commerce and recycling can be built with back-end information database system through the network.

**8.2 — 9:20 a.m.**

**Fuel Cells and Portable Electronics, Chris Dyer, Compact Power**

There is a growing need for much smaller power sources in consumer-portable electronics such as mobile phones and computers. Batteries such as the popular Li-ion battery cannot support the desired amount of operation time for advanced electronic devices. Fuel cells are potentially capable of meeting the new requirements because of the high energy-content of their fuels. Scale down of conventional fuel cells and an entirely new fuel cell based on nanotechnology will be discussed.