

応用物理学会北海道支部講演会

日時：2018 年 11 月 15 日 9:15 – 10:15

場所：北海道大学 情報科学研究科棟 2 階 A24 教室

講師

Dr. Kirsten E. Moselund

IBM Research Zurich;

標題：

Materials Integration for New Computing Paradigms

要旨：

Scaling has long since ceased to be sufficient to support the performance improvements expected from the next generation technology. In this talk, I will address some of the new trends in exploratory materials development for beyond Moore applications. In particular, I will focus on topics such as the monolithic and heterogeneous integration of III-V's for photonics and high-performance electronics. At IBM we have developed a technique referred to as Template-Assisted-Selective-Epitaxy (TASE), where we grow III-V confined within hollow oxide cavities. The template guides the growth and allows for the integration of vertical and lateral nanowires as well as arbitrarily shaped nanostructures. In terms of devices we have demonstrated high performance III-V MOSFETs and complementary tunnel FETs, as well as GaAs and InGaAs micro-disk lasers. Finally, material properties as well as nanoscale thermal characterization of III-V nanowire and CNT devices will also be discussed. Using a scanning thermal probe technique we are able to resolve the thermal response at the nm-scale during device operation.

講師情報

Kirsten Emilie Moselund received the M.Sc. degree in engineering from the Technical University of Denmark in 2003 and the Ph.D. degree in microelectronics from the Swiss Federal Institute of Technology in Lausanne (EPFL), Lausanne, Switzerland, in 2008. In 2008, she joined the IBM Zurich – Research, where she is currently managing the Materials Integration and Nanoscale Devices group, which among other things focuses on III-V on silicon integration for new electronic devices for ultra-low power electronics as well as for active nanophotonics, in particular on their experimental demonstration in the BRNC Nanotechnology Center. Her research interests include nanofabrication technology, semiconductor physics, nanophotonics and novel electronic and photonic device concepts.

世話人

富岡克広

北海道大学大学院情報科学研究科

tomioka@rciqe.hokudai.ac.jp

tel:011-706-6132

fax:011-716-6004