

Highlights for 2016

The year 2016 was one of continued growth for the Center for Quantum Devices, referred to here and around the world as *QDev*. Overall, QDev personnel exceeded 100 researchers including professors, postdocs, PhD candidates, Masters students, and a few brave Bachelors students engaged in research. A significant part was sponsored by Microsoft Research, and those aspects of research that are collaborations with Microsoft share the designation *Station Q Copenhagen*.

Research in QDev continued to break new ground and receive international attention. Highlights include the article in *Science*, lead author Mingtang Deng, on Majorana bound state in a coupled quantum-dot hybrid-nanowire system and an article in *Nature*, lead author Sven Albrecht, on experimental verification of the exponential interaction of Majorana modes. Both papers were experiment-theory collaborations among QDev members, and are using materials grown within QDev. An article by Aasen *et al.*, published in *Physical Review X*, suggesting a simple verification of Majorana zero mode non-abelian statistics, a Copenhagen-Caltech collaboration, also echoed in the scientific community. These articles are good examples of QDev's strength in fostering collaboration between theory and experiment within the Center, as well as a sign of our strong international collaborations.

Work in QDev was recognized with a number of awards and honors: Assistant Professor Peter Krogstrup was awarded a ERC starting grant and a Marie Curie Innovative Training Networks, Associate Professor Thomas Sand-Jespersen received a grant from the Villum Foundation's Young Investigator Program and Associate Professor Ferdinand Kuemmeth received a grant from Marie Curie Innovative Training Networks.

The second QDev/NBIA Summer School was held during week 27 of 2016. The theme was "Quantum Information in Condensed Matter Physics". The School aimed to provide a valuable educational experience for local and international PhD students, bringing them in contact with leading researchers in the field of condensed matter physics. The event served to introduce the stimulating research environment at QDev to these up-and-coming young scientists. A total of 72 students participated, with ~ 80% from outside Denmark.

National outreach this year included Charles Marcus appearing in an interview on the national television TV2 in the 22 news slot. The interview focused on the activities related to progress in quantum computing research in Copenhagen. In addition PhD student Thorvald Larsen appeared in an interview on *Go' Morgen Danmark* on TV2. In international outreach, QDev welcomed 244 visitors and hosted 44 seminars and lectures in 2016. These seminars offset the shortage of NBI-sponsored seminars and colloquia, bringing students in contact with researchers from around the world. Students and postdocs were invited to join the speaker for dinner.

Figure 1. Participants from the well attended QDev/ NBIA Summer School. A total of 72 students participated representing 31 foreign institutions spanning the US, Canada, Brazil and Europe. The scientific program covered a range of topics, designed to give students both perspectives on their own research as well as introductory exposure to new problems.

