

Angle-Resolved Photoemission from Nanostructures: Past, Present, and Future

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It is now possible to fabricate quantum wells and quantum wires with atomic precision. That makes it possible to study low-dimensional electrons and the exotic phenomena associated with them. While quantum devices, such as the quantum well laser, are ubiquitous and have received the Nobel Prize, going down to the atomic scale will test the ultimate limits of electronics. The most complete method for characterizing low-dimensional electrons is angle-resolved photoemission, which has been a mainstream technique at the SRC for a long time. The speaker has been part of it since the beginning, but he is also involved with deliberations about the next generation light sources and the new experiments enabled by them. Examples are spatially-resolved angle-resolved photoemission, as well as time-resolved pump-probe experiments which can follow photo-excited electrons on their way through a solar cell.