Contribution ID: **27** Type: **not specified**

# Investigating Quantum Size Effect in Monolayer Mn on Ag(111) by Scanning Tunneling Microscopy/Spectroscopy

*Wednesday, 26 March 2025 14:02 (3 minutes)*

Quantum size effect has received much attention because of its fundamental importance and potential applications in nanoscale electronic devices. Our group focuses on investigating quantum size effect in monolayer manganese (ML Mn) on Ag(111) by scanning tunneling microscopy (STM). According to scanning tunneling spectroscopy (STS) measurements and theoretical calculations, we observe two peaks roughly located at 1.2V and 1.6V and these two peaks are mainly from Mn 3d out-of-plane orbitals. Furthermore, we found that these two peaks will shift or even merge together while the island sizes reduce. This results indicate that the quantum size effect has a significant influence on electronic structures of ML Mn on Ag(111).

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**Session Classification:** Poster Talks

**Track Classification:** Condensed Matter Experiment