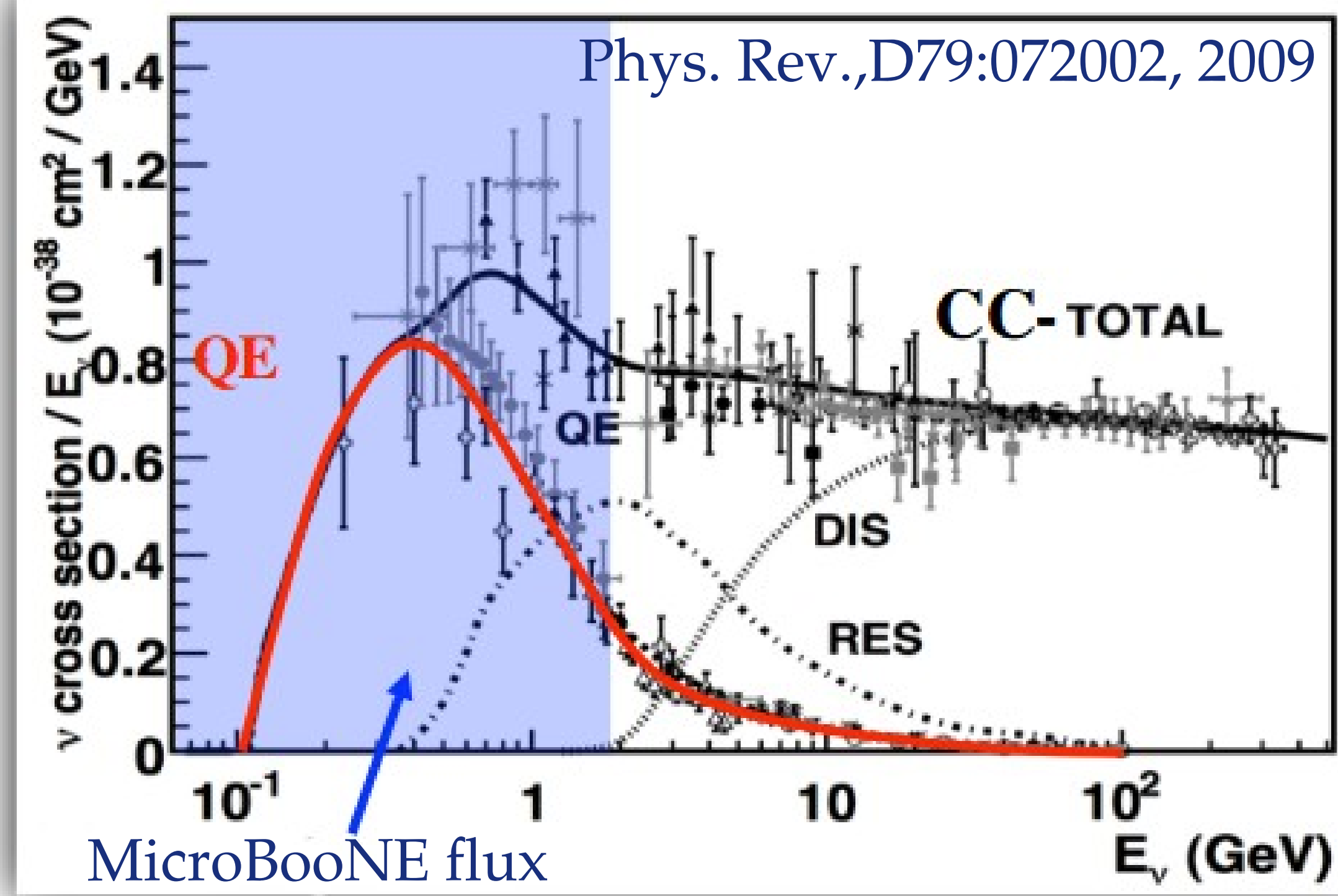


Why Charged Current Quasi-Elastic Interactions?



CCQE: Charged Current Quasi-Elastic Interactions

- Simplest nuclear process
- Dominant at low energies
- Ideal channel for high precision oscillation studies

Topological Signal Definition

- Reconstructed vertex of 2 tracks at close proximity
- Minimally ionizing muon with $P > 100$ MeV/c
- Proton with $P > 300$ MeV/c, tagged with Bragg peak

Event selection based on detector level (energy deposition, track length, scintillation light) and interaction level cuts (vertex activity, coplanarity, transverse momentum imbalance)

First measurement of CCQE-like cross sections using a surface Liquid Argon time projection chamber

- Discrepancy in low Q^2 region
- Better agreement when forward region is excluded

