

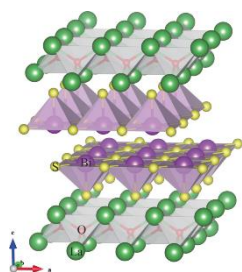
# PHYSICS COLLOQUIUM



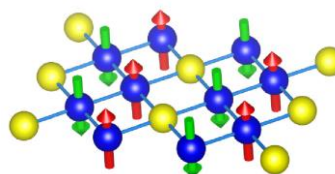
TRIUMF ( $\mu$ SR)



CSULA (NMR)



$\text{LaO}_{0.5}\text{F}_{0.5}\text{BiS}_2$



$\text{La}_4\text{Ni}_3\text{O}_8$

Dr. Oscar Bernal  
California State University Los Angeles

## Quantum and hidden magnetism studied by magnetic-probe spectroscopies

### Abstract

We present an overview of two magnetic-probe spectroscopic techniques used to study magnetism in correlated-electron systems and their applications. Both Muon Spin Rotation  $\mu$ SR and Nuclear Magnetic Resonance NMR are local probes of static and dynamic magnetism. They probe and map out the magnetic field (its strength and magnitude variations in space and time: static and dynamic fluctuations) at the magnetic probe (muon or nucleus respectively), shedding light on the underlying mechanisms that produce interesting behavior in systems such as quantum magnets and superconductors. Two specific examples of our studies pertaining these systems; i.e.,  $\text{La}_4\text{Ni}_3\text{O}_8$  ( $\mu$ SR) and  $\text{LaO}_{0.5}\text{F}_{0.5}\text{BiS}_2$  (NMR), will be highlighted.

3:00-4:00 p.m., Friday, January 31<sup>st</sup> in McLane 162