NEUTRON SCATTERING FOR MOLECULAR SPECTROSCOPY: INTRODUCTION, SCOPE OF TECHNIQUES AND RECENT DEVELOPMENTS.

BRUCE S. HUDSON, *Department of Chemistry, Syracuse University, Syracuse, New York 13244- 4100*.

A brief introduction to neutron scattering will be given including momentum transfer, lack of selection rules, coherent vs. incoherent scattering and isotopic specificity. Neutron sources based on reactors or accelerator spallation targets will then be described including the current SNS project at Oak Ridge. Several existing inelastic neutron spectrometers and their range of energy and momentum will then be presented. The TOSCA spectrometer and its proposed SNS version known as VISION will be discussed in detail. These are ”inverse geometry instruments” with fixed final energy. Sample requirements for present and future spectrometers will be considered. A recent review of inelastic neutron scattering is given in J. Phys. Chem. A 2001, 105, 3949-3960.