The cation distribution in 4 compounds: \( ZnAl_2O_4 \), \( ZnFeO_2 \), \( TiSnO_4 \), and \( SnSnO_4 \) has been determined by neutron diffraction. Part of the investigations were done by conventional monochromatic powder diffraction at the FRJ-2 reactor in Julich, part by TOF-measurements at the spallation sources ISIS. In both cases a position sensitive linear detector has been used.

The diffraction measurements were preceded by Mössbauer studies, which yielded contradicting results. The question arose whether the compounds crystallize as normal spinels or as inverse spinels. Only neutron diffraction with sufficient differences in the scattering lengths between Zn and the other cations will give the proper result.

The analysis was done by the Two-Step-Method with first a profile analysis and profile fitting yielding intensities for each reflection. The actual analysis and the cation distribution was then done with the POWLS least squares program. Procedures and results will be shown.

**OCM-01.06.02**

**PULSED NEUTRON SOURCES AND STEADY REACTOR SOURCES**

By Y. Endo, Department of Physics, Tohoku University, Aramaki Aza Aoba, Aoba ku, Sendai, 980, Japan

We have argued for a long time the necessity of the complementary usage of both steady and pulsed neutrons for condensed matter science in particular. In early days, we have developed pulsed neutron scattering techniques by carrying out experiments at the electron linear facility of Tohoku University. Pulsed neutrons has been delivered since the late 50's. In 1981, the first pulsed spallation neutron beam was delivered at the National Laboratory for High Energy Physics (KEK) in Japan after three year's construction of this neutron facility, RENS. It was once the most intense and also the first full scaled pulsed neutron facility in the world. Since then RENS has been improved by the renewal of the spallation target as well as intensifying the proton accelerator, but it is a for small scaled facility compared with the world highest neutron facility of ISIS at the Rutherford Appleton Laboratory.