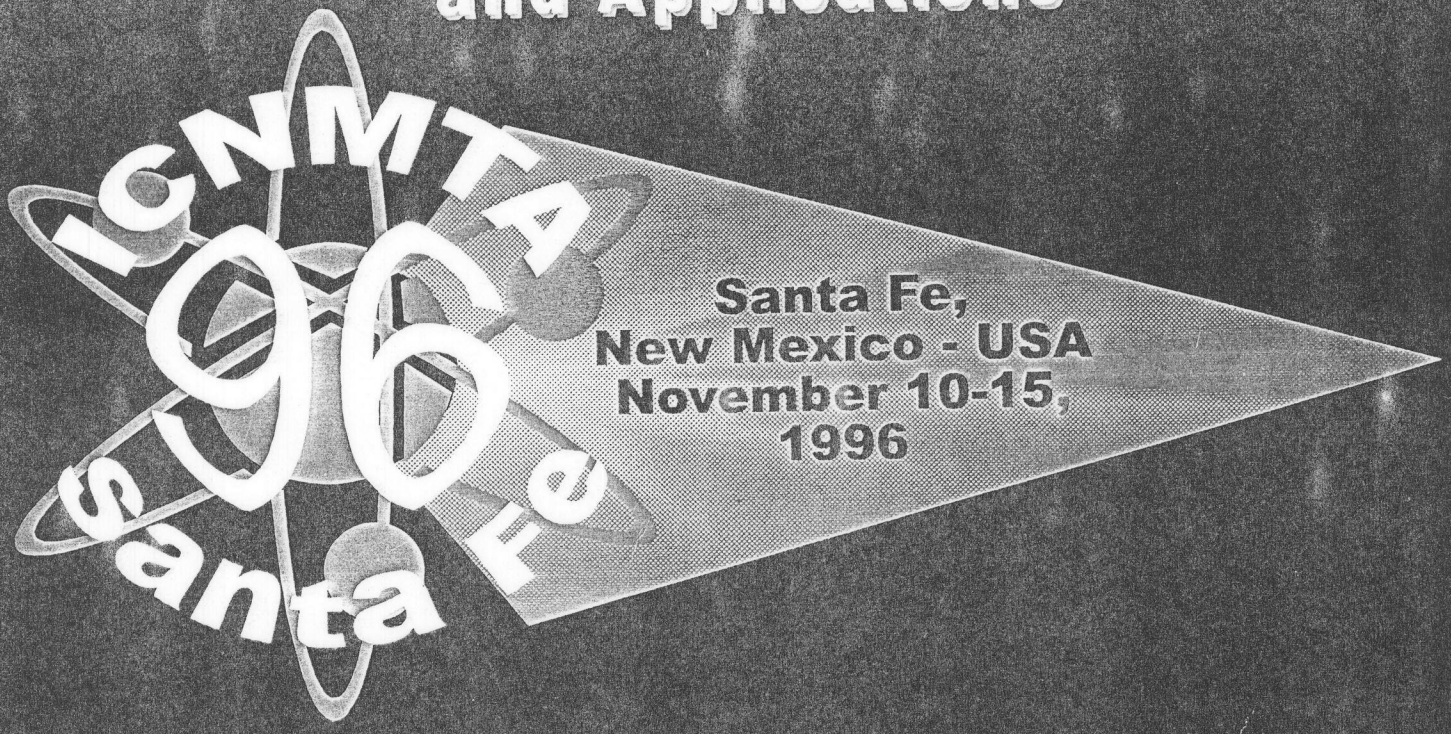
5th International Conference on Nuclear Microprobe Technology and Applications



FINAL PROGRAM

and Abstracts

Eldorado Hotel

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Q-23 thursday 1:00 PM geology poster presentation

TRACE ELEMENT ANALYSIS IN CRUDE OIL SAMPLES, M.A. Garwan, Physics Department, King Fahd University of Petroleum and Minerals, Dhahran, 31261, Saudi Arabia, G.W. Grime, University of Oxford, Department of Nuclear Physics, Oxford OX1 3RH, UK.

Knowledge of trace element concentrations in crude oil has been very useful to the oil industry, especially in the areas of classification and exploration.

This paper presents a preliminary study on the analysis of trace elements in crude oil samples using the μ-PIXE technique. The scanning proton microprobe at the University of Oxford was used in this study. Aspects of sample preparation, experimental data and comparative data will be presented.

Q-24 thursday 1:00 PM geology poster presentation

MICROANALYTICAL INVESTIGATIONS OF GOLD-BEARING ROCKS: EXAMPLES FROM SUKHAYBARAT REGION, SAUDI ARABIA,

KHANDAKER, NAZRUL I., (Earth Sciences Dept.; King Fahd University of Petroleum & Minerals, Dhahran 31261, Saudi Arabia); AHMED, M., (Energy Research Lab; Research Institute, KFUPM); AL-OHALI, M., (Physics Dept., & Energy Research Lab., Research Institute, KFUPM), GARWAN, M., (Physics Dept., KFUPM) HARIRI, MUSTAFA M., & KHAN, KHALID, R., (Earth Sciences Dept., KFUPM)

Sukhaybarat region situated within the exposed northeastern part of the Arabian Shield constitutes an important locality in terms of hosting important gold mineralization zones in the kingdom. Currently several open-pit mines are in operation to recover gold from this area. A preliminary geological and geochemical study was conducted to determine the major and trace element concentratin within the gold-bearing host rocks. Several microanalytical tools including Scanning Electron Microscopy, Proton-ion Microscopy, Electron Microprobe, and X-ray Diffraction were utilized. These microanalytical tools and routine petrological study demonstrated the presence of important partitioning of major and trace elements within various samples that were collected from critical locations in close proximity to the current open-pit mining. Attempt was made to use these elements as a discriminant factor for characterizing particular ore-bearing rocks with special reference to certain magmatic provenance associated with individual mineralization zone. Current study showed good promise in terms of using distinctive geochemical signatures for identification of individual ore body. Of particular interest to this study is the presence of an identifiable geochemical trend pertaining to Au, As, Ti, An, Cu, Ag, and Fe. This sort of geochemical partitioning of trace and major elements can provide significant geochemical and tectonic information concerning the ore-bearing magma and can be used as a future exploration