

ESR studies and ESR dating of quartz collected from Kapadokya, Turkey

[Ulusoy U](#), [Apaydin F](#)

APPLIED RADIATION AND ISOTOPES 47 (11-12): 1405-1407 NOV-DEC 1996

Abstract: In this work we have investigated quartz grains which were extracted from ignimbrites in Kapadokya, using ESR spectroscopy techniques. It was found from the ESR spectra of the natural quartz that Al and Ti centers were responsible for the observed ESR lines. Their calculated g-factors were found to be $g(1) = 2.07$, $g(2) = 2.01$ for the Al center and $g = 1.93$ for the Ti center. Thermal behavior of these centers were examined by making isothermal and isochronic annealing experiments. It was shown from these experiments that Ti centers were more stable than the Al centers. Signal growth curves due to the gamma-irradiation helped us to estimate the ADs (acquired doses) and the ages of the quartz grains. We have determined the age of the quartz grains to be 1.2 Ma with an error factor of 22%, which falls into the Pliocene epoch in the time scale.

Copyright (C) 1996 Elsevier Science Ltd

Addresses: Ulusoy U (reprint author), HACETTEPE UNIV, DEPT ENGN PHYS, MAGNET RESONANCE LAB, ANKARA, TURKEY

Publisher: PERGAMON-ELSEVIER SCIENCE LTD, THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD, ENGLAND OX5 1GB

Subject Category: Chemistry, Inorganic & Nuclear; Nuclear Science & Technology; Radiology, Nuclear Medicine & Medical Imaging