

TL AND ESR DATING OF CALCITE (1)

Walter E. F. Ayta (2) and S. Watanabe (1) Institute of Physics, University of São Paulo, C.P.66318, 05315-970, S.Paulo, SP, Brazil

National Park Serra da Capivara, Piauí, Brazil, is worldly known due to rockwall paintings by early settlers and also due to archaeological materials that dated by carbon-14 technique yielded 6.000 to 48.500 years. In one of rockshelter called Toca da Bastiana, it was found a calcite formation about 0.2 cm thick, 0.3cm wide and 50 cm long. Part of this calcite was dated by Baffa Jr, in 1991 using electron spin resonance (ESR) technique and an age of 17 Ka was obtained. In the present work the rest of calcite was collected and its thermoluminescence (TL) as well as ESR characteristics through glow curve and ESR spectra have been determined. In particular, TL light as function of radiation and ESR signal intensity vs. dose were measured from which an accumulated dose $D_{ac} \sim 68$ Gy was determined. The annual dose rate was obtained placing TL dosimeters on the surface of rock at Toca da Bastiana for 60 and 124 days obtaining 1.7 mGy/year. The calcite age was found to be about 38.000 years.