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Owen M. Williams, Nigel A. Spooner, Barnaby W. Smith, Jillian E. Moffatt

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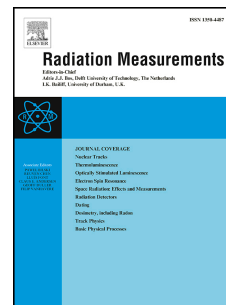
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# Extended Duration Optically Stimulated Luminescence in Quartz

Owen M. Williams<sup>1</sup>, Nigel A. Spooner<sup>1,2</sup>, Barnaby W. Smith<sup>2</sup> and Jillian  
E. Moffatt<sup>1</sup>

## Abstract

As part of an investigation into the mechanisms underlying optically stimulated luminescence (OSL) in quartz, we have shone a number of South Australian natural quartzes over a six day measurement period. During this time the OSL signal was recorded over ten decades in time and fell six to seven decades in luminescent intensity. In particular, we observe the presence of a number of steps that appear when the luminescence is displayed in log/log form. In exploring the underlying mechanism, we review both the standard energy band gap model for quartz OSL and the alternative defect pair model and find that the latter can be applied to explain the steps in terms of a nearest neighbour extension.

1. Institute of Photonics and Advanced Sensing, School of Physical Sciences, University of Adelaide, Adelaide, Australia 5005
2. Weapons and Combat Systems Division, Defence Science and Technology Group, P.O. Box 1500, Edinburgh, Australia 5111

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