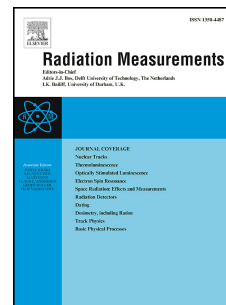


Accepted Manuscript

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S.V. Nikiforov, V.S. Kortov, L.O. Oduyeva, A.S. Merezchnikov, A.I. Ponomareva, E.V. Moiseykin



PII: S1350-4487(16)30435-8

DOI: [10.1016/j.radmeas.2016.12.003](https://doi.org/10.1016/j.radmeas.2016.12.003)

Reference: RM 5672

To appear in: *Radiation Measurements*

Received Date: 6 September 2016

Revised Date: 7 December 2016

Accepted Date: 9 December 2016

Please cite this article as: Nikiforov, S.V., Kortov, V.S., Oduyeva, L.O., Merezchnikov, A.S., Ponomareva, A.I., Moiseykin, E.V., Isothermal build-up of deep trap thermoluminescence of anion-defective alumina crystals, *Radiation Measurements* (2017), doi: 10.1016/j.radmeas.2016.12.003.

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07 December 2016

Isothermal build-up of deep trap thermoluminescence of anion-defective alumina
crystals

S.V. Nikiforov, V.S. Kortov, L.O. Oduyeva, A.S. Merezchnikov, A.I. Ponomareva,
E.V. Moiseykin

Ural Federal University, 19 Mira street, 620002 Ekaterinburg, Russia

Abstract ID – IND-O-12

Abstract – TL of a deep trap was studied during isothermal heating in dosimetric $\text{Al}_2\text{O}_3:\text{C}$ crystals irradiated by a high-dose pulsed electron beam. The TL build-up of a deep trap associated with the peak at 440 °C was found. This effect was absent for TL peaks at 305 and 565 °C. The observed TL build-up can be interpreted in terms of the kinetic model taking into account the process of thermal ionization of excited states of F-centers. The dependences of TL build-up intensity and time on the temperature, heating rate and occupancy of deep hole traps were established experimentally and confirmed by calculations.

Keywords: Aluminium oxide; Thermoluminescence; Deep traps; Isothermal build-up; F-center ionization

Postal Address:

S.V. Nikiforov

The Ural Federal University named after the first President of Russia
B.N.Yeltsin

Institute of Physics and Technology

19 Mira Street, 620002 Ekaterinburg, Russia

E-mail address: s.v.nikiforov@urfu.ru

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