Accepted Manuscript

Phase-type distributions for studying variability in resistive memories

C. Acal, J.E. Ruiz-Castro, A.M. Aguilera, F. Jiménez-Molinos, J.B. Roldán

PII: S0377-0427(18)30362-5
DOI: https://doi.org/10.1016/j.cam.2018.06.010
Reference: CAM 11740

To appear in: *Journal of Computational and Applied Mathematics*

Received date : 16 March 2018
Revised date : 5 June 2018

Please cite this article as: C. Acal, J.E. Ruiz-Castro, A.M. Aguilera, F. Jiménez-Molinos, J.B. Roldán, Phase-type distributions for studying variability in resistive memories, *Journal of Computational and Applied Mathematics* (2018), https://doi.org/10.1016/j.cam.2018.06.010

Highlights (for review)

Phase-type distributions for studying variability in resistive memories

- Reliability analysis of switching parameters in Resistive Random Access Memories (RRAMS) is developed.
- The lack of fit of the weibull model is shown with data of voltage up to the conductive filament failure (Vreset).
- A new statistical modeling of Vreset based on phase-type distributions (PHDs) is introduced.
- Estimation and selection of parameters of the PHD via EM algorithm provide the Erlang distribution (ED) as the best fit.
- The ED has two parameters with a clear physical interpretation.