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Phase-type distributions for studying variability in resistive memories

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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 ( $V_{\text{reset}}$ ).
- A new statistical modeling of  $V_{\text{reset}}$  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.

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