

Optimization of the Recording and Readout Performance of Phase-Change Media for Scanning Probe Storage Applications

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ABSTRACT

In this paper we report on the optimization of the recording (bit writing) and readout (signal recovery) processes in phase-change media for scanning electrical probe storage applications [1,2,3]. The design of suitable media stacks to enable the writing of small, regular-shaped bits under low voltage/low power conditions is discussed. In addition we study, using a parametric variation approach, the effects of any inherent or fabrication-induced variations in media properties (e.g. layer thickness variations, electrical and thermal conductivity variations) on the reliability of the writing and reading processes. We also present results on the design of appropriate readout channels to enable the recovery, with low bit error rates, of data from the phase-change scanning probe channel. This work forms part of the EU funded FP6 project ProTeM - Probe based TeraByte Memories.

Acknowledgement: The EC is gratefully acknowledged for the funding of this work via the ProTeM project.

References:

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