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**Bridging amount of spin-glasses over ferromagnetic/antiferromagnetic thin films and bit-cell dispersion of exchange bias in corresponding TA-MRAM devices** KAMIL AKMALDINOV, Spintec/Crocus Technology, CLARISSE DUCRUET, JEREMY ALVAREZ-HERAULT, Crocus Technology, VINCENT BALTZ, Spintec, SPINTEC TEAM[1], CROCUS TECHNOLOGY TEAM[2] — For thermally-assisted magnetic random access memories (TA-MRAM), lowering bit-cells dispersions of exchange bias is necessary. In this study, we prove that spin-glass-like phases (SG) spread over the ferromagnetic/antiferromagnetic (F/AF) storage layer are the main cause of such distributions once the film is nanofabricated into a device. In particular, we show that the less the SG, the lower the bit-cell dispersion. More precisely, the amount of SG was varied from sample to sample by sputtering various AFs: IrMn, FeMn and their alloys [1]. Blocking temperature distributions were measured to quantify the amount of SG at the wafer level [2]. The wafers were then patterned to obtain 1kb devices and all the cells were tested electrically. Finally, the resulting loop shift cumulative distribution functions accounting for the bit-cell dispersions were correlated to the initial amount of SG. In addition to bridging the gap between fundamental SG and a technological application, we also demonstrated that blocking temperature distributions are a versatile method to qualify TA-MRAM production batches before processing [3]. [1] K. Akmaldinov, et al, J. Appl. Phys. 115, 17B718 (2014) [2] V. Baltz, et al, Phys. Rev. B 81, 052404 (2010) [3] K. Akmaldinov et al, to be published.

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