

# Materials, Technology and Reliability for Advanced Interconnects and Low-K Dielectrics - 2004 (MRS Proceedings)



The scaling of device dimensions with a simultaneous increase in functional density has imposed tremendous challenges for materials, technology, integration and reliability of interconnects. To meet requirements of the ITRS roadmap, new materials are being introduced at a faster pace in all functions of multilevel interconnects. The issues addressed in this book cannot be dispelled as simply selecting a low-k material and integrating it into a copper damascene process. The intricacies of the back end for sub-100nm technology include novel processing of low-k materials, employing pore-sealing techniques and capping layers, introducing advanced dielectric and diffusion barriers, and developing novel integration schemes. This is in addition to concerns of performance, yield, and reliability appropriate to nanoscaled interconnects. Although many challenges continue to impede progress along the ITRS roadmap, the contributions in this book confront them head-on. It provides a scientific understanding of the issues and stimulate new approaches to advanced multilevel interconnects.

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<https://doi.org/10.1116/1.1627766> G. Passermard, Materials, Technology and Reliability of Low-k Dielectrics **Materials, Technology and Reliability for Advanced Interconnects** Materials, Technology and Reliability for Advanced Interconnects and Low-K Dielectrics - 2004 (MRS Proceedings) [R. J. Carter, C. S. Hau-Riege, G. m. Kloster **Electromigration-induced extrusion failures in Cu/low-k interconnects** and Reliability for Advanced Interconnects and Low-K Dielectrics - 2004 13-15, 2004, San Francisco, California, U.S.A - MRS Proceedings **Materials, Technology and Reliability for Advanced Interconnects** Materials, Technology and Reliability for Advanced Interconnects and low-K Dielectrics: Paperback Mrs Proceedings English the utilization of new dielectric materials with a lower relative dielectric constant k than SiO<sub>2</sub> in . . **Publications Dauskardt Group** Materials Science, Processing, Reliability, and Manufacturing : Proceedings of the and R.J. Gutmann, in 2004 MRS Spring Meeting, Symposium K: Advances in Technology and Reliability for Advanced Interconnects and Low-k Dielectrics, **Materials, Processes, and Reliability for Advanced Interconnects for** Materials, Processes, and Reliability for Advanced Interconnects for Micro- and Kokubo, National Institute of Advanced Industrial Science and Technology held at the April 25<sup>th</sup>/29, 2011 MRS Spring Meeting in San Francisco, California. The symposium included topics relating to low-k dielectrics, integration, reliability, **Materials, Technology and Reliability for Advanced Interconnects** The Ta ionic drift and diffusion into the dielectric led to an increase in Proceedings of IEEE International Reliability Physics Symposium (IEEE, Materials, Technology and Reliability for Advanced Interconnects and Low-K Dielectrics, Mater. C. S. Hau-Riege, T. M. Lu, and S. E. 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