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"Reliability issues of NAND Flash memory"

Studies of reliability issues in Flash memory has a long, long history. The difficulty comes from that both electric field across and current flowing through oxide is high during program and erase. This causes a lot of traps and surface states. Nevertheless, the mechanism is still an open problem. In addition, recent products of NAND Flash have already transited from 2D to 3D, which has caused new reliability issues. One is related to grain boundaries in poly Si channel. The other is related to charge storage layer including Si-nitride. In this tutorial, we will review two topics considering above mentioned circumstances. First is independent from technology node and universal among many kinds of reliability issues. Next is related especially to 3D-NAND.

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