Bias Temperature Instability Detection of Integrated Circuit Sumit Kumar Biswas\*, Toru Kamiyama†, Nobukazu Takai††, Haruo Kobayashi,

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## 1. Background:



## 3.Simulation Result



## 4. Proposed Detection method



# 5. Experimental Result

## 6. Conclusion

Conclusion



Research on one of the latest reliability concern of MOSFET
Theoretical explanation of Bias Temperature Instability Degradation
Possible effect on MOSFET operation due to BTI degradation
Effect of BTI on analog circuit operation based on R-D model
BTI degradation simulation using 90nm process
Proposal of BTI detection method using Time Transient Comparator

Future work

- Much wider application of Time Transient Comparator circuit
- A self healing system for automatic recovery of the chip
- BTI degradation in very high frequency operation and possible effect on circuit performance.



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