Can Mutation Analysis Help Fix Our Broken Coverage Metrics?

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Abstract. The semiconductor industry relies on coverage metrics as its primary means of gauging both quality and readiness of a chip for production, and yet the metrics in use today measure neither quality nor provide an objective measure of completeness. This talk will explore the problems with existing metrics and why they are not proper measures of verification. Mutation analysis looks like a promising technology to help bridge the divide between what we have and what we need in terms of metrics and may also be able to help bridge the divide between static and dynamic verification. The talk will conclude with some of the remaining challenges that have to be overcome, such as its correct fit within a verification methodology and the standardization of a fault model.