PUFs Using Manufacturing Variations for Robust Security in the IoT

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Manufacturing variations are a major issue in the field of nanoelectronics as they are inevitable, unpredictable, naturally occurring and uncontrollable. These manufacturing variations that occur during the fabrication stages of an IC can be used to develop security modules for various applications. Physical Unclonable Functions (PUFs) use these variations that occur naturally during fabrication to generate cryptographic keys which can be used for security applications. Because the keys are generated based on the manufacturing variations, they cannot be generated by other PUF modules even if their design is identical. Thus, robustness can be increased with implementation of such hardware security.