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Implementing p-bits with Embedded STT-MRAM

A new p-bit device compatible with current random number generators and 2-Terminal Magnetic Tunnel Junctions enables the development of large-scale networks for computing and optimization applications.

Magnetic tunnel junction using unstable magnets have been shown to work well with random number generators. If many random number generators can be interconnected, then many new applications of optimization can be enabled. With the enablement of these new applications, the formation of large scale networks would be possible. For this to happen, however, a new device needs to be created.

Researchers from Purdue University have developed a new device that allows the formation of large scale networks. They have developed a p-bit that can be implemented by using current random number generators and current 2-Terminal Magnetic Tunnel Junctions. This means that there is no need to go through a complicated development process of the 3-Terminal Magnetic Tunnel Junction. This new device can potentially help in the future development of large scale networks.

Advantages:

-Adapts with current technology

-Easier to design

Potential Applications:

-Computing

-Large scale networking

TRL: 3

Intellectual Property:

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Semiconductors/Devices & Components

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