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Abstract for Article

We review methods for using DNA triple crossover (TX) molecules to do elementary Boolean functions and show how these methods can be extended in order to do more complicated calculations and build 3D objects. The Boolean tree-like circuit (BTLC) concept was used to form templates that can be programmed to encode any Boolean expression. DNA crossover molecules were then assembled onto the templates. In this model the templates encode Boolean expressions while the DNA act as tiles that encode the entries of the circuit. The different categories of DNA tiles represented inputs, computation gates, transmitter gates, and void tiles. The advantage to this architecture is that it is Turing-universal since any inputs may be used. We also present a method for error detection using tiles that contain biotin groups. Programmable and reusable 2D and 3D DNA devices can be made through the use of two different motifs, PX and JX_2, and represent certain of the best applications of this technique.

proposed only.

may?

More description/summary of layer interactions.
Where is the actual computation happening?

Mention actual DNA motifs to be used.