



## Design of Optimized Stellarators with Simple Coils

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Recent studies in stellarator optimization have shown that the properties of stellarator such as rotation transform, neoclassical confinement, and ideal MHD stability can be improved significantly. However, magnetic coils of optimized stellarators are usually quite complex and are difficult to be built. Thus optimization of stellarators with simple coils is important. The goal of this work is to design a small stellarator with simple coils and good neoclassical confinement. Towards this goal we have developed a code suite for calculating vacuum flux surfaces directly from magnetic coils, evaluating single particle confinement as well as calculating neoclassical transport. In contrast with traditional method of optimizing from flux surface, our code suite has been used to design simple stellarators by direct optimization from coils. Interesting stellarator configurations similar to the CNT stellarator have been found with only 4 or 6 simple coils. Detailed results will be presented.

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