

Theory and Applications of Islamic Star Patterns

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Abstract

The tradition of Islamic star patterns has brought us some of history's greatest and most elegant examples of ornamental design. Over the centuries, the creation of new patterns and the execution of existing ones has declined. Today, armed with the tools of modern mathematics and computer science, we have the opportunity to revitalize this style of ornamentation, and to explore the world of Islamic star patterns simply and fruitfully.

I present some of my recent work in the generation of Islamic star patterns, specifically in how they may be adapted to non-Euclidean geometry. I also show examples of how various computer-aided manufacturing processes may be used to realize these virtual star patterns as real-world artifacts.