

Anna and Michael Chupa

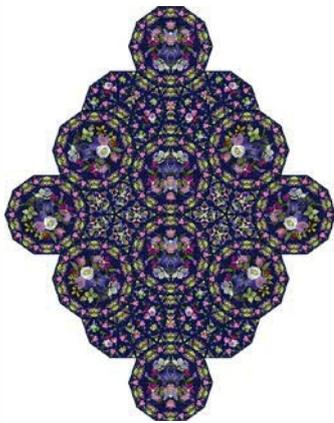
TITLE: Wearable

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www.lehigh.edu/~anc304/tiling/gallery.html**Michael Chupa**Children's Hospital of
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United States**Abstract:**

At Generative Art 2012, we introduced *Tilings* made from still life compositions bounded by girih shapes; a decagon, a pentagon, a rhombus, a concave hexagon (bowtie) and an elongated hexagon. Each girih tile is divided further by strapping lines, which are reserved as negative space. As the tiles are joined, the strapping lines reveal larger fivefold symmetries. At GA13, we introduced *Tilings 2*, a two-level design in which the girih forms appear at two scales with a variation on the subdivision rule used on the Darb-e Imam shrine built in 1453 Isfahan.

For GA14 we continue to utilize self-similarity, that is, the smaller scaled girih tiles inflate to create larger tiles through subdivision and substitution. What makes this process more complex is that the tiles themselves are not flat color. In most girih tilings, individual tiles are solid colored. For flips and rotations, orientation of the tile doesn't present a problem. In our girih tiling, each tile is filled with floral compositions that are asymmetrical. There is a clear orientation. As the larger second level tiles rotate to create a new pattern, the boundary tiles between them (where they abut) are bisected and flipped along the axis of rotation. This is where new interior configurations of the tiles are created and this is the process that becomes generative.

For the example shown on the left bottom, we show the small rhombus in detail. Above that we show the larger rhombus (scaled down to fit this page) subdivided into ten decagons, ten rhombi, eight hexagons and eight bowties. In our wearable we have arranged the rhombi in a half-drop pattern with slight gaps between each rhombus. The half-drop pattern fills the ground plane. The botanical source material that is readable floats on the surface of the girih construction unconstrained by rules of tiling that permit no gaps and no overlaps.



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Keywords:

Girih, tiling