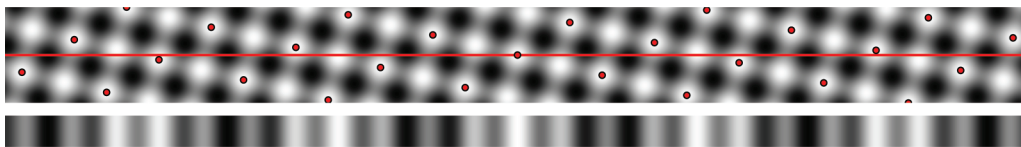


The cover image was produced by Frank Farris, and is a modification of Figure 4 in his article in this issue.

It records the values (through coloring and shading) of a fairly simple periodic function (specified in that article), restricted to one of the eigenplanes of the cyclic permutation in  $\mathbb{R}^5$ . What's important here, as he says in the article, is that although crystalline 5-fold symmetry is impossible, it can be very closely approximated. The basic idea behind what one sees is already apparent in two dimensions—the figure below shows in a similar way the restriction of  $\cos(x)\cos(y)$  to an irrational line in  $\mathbb{R}^2$ .



But the details of what happens in Farris' figure are nonetheless striking, perhaps even hypnotic, and what one sees is certainly more striking in two dimensions than in one. Mathematically, the effect is due to lattice points in  $\mathbb{Z}^5$  that are near to the plane, and the extraordinary accuracy with which patterns are repeated is presumably due to the accuracy with which the golden ratio is tightly approximated by rational numbers. And perhaps also something intrinsic to human visual perception.

We thank Frank Farris for the time and effort spent on this.

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