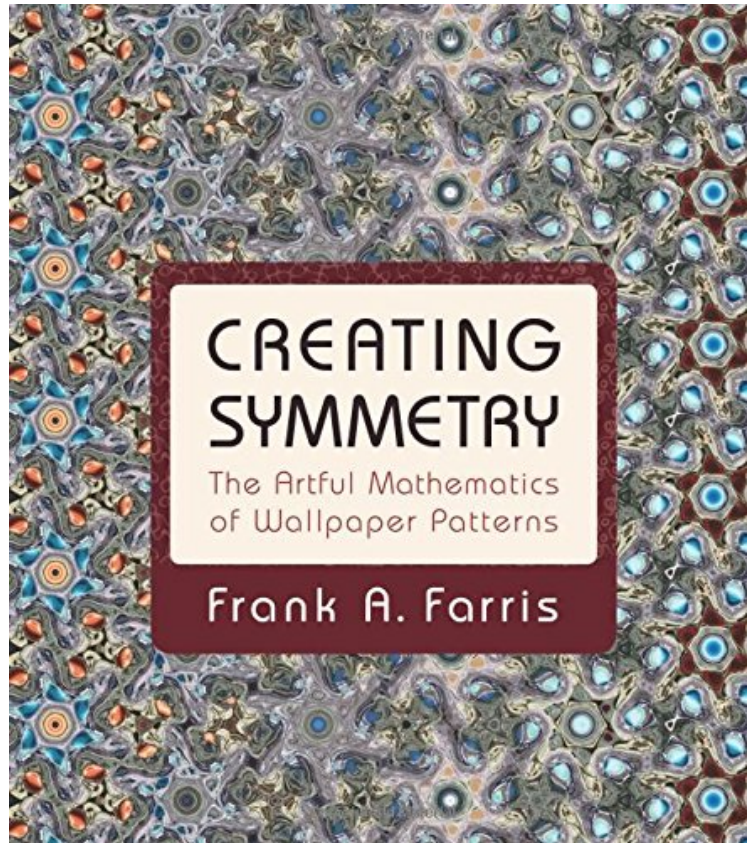


Creating Symmetry: The Artful Mathematics of Wallpaper Patterns

Frank A. Farris

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Frank A. Farris : Creating Symmetry: The Artful Mathematics of Wallpaper Patterns before purchasing it in order to gage whether or not it would be worth my time, and all praised Creating Symmetry: The Artful Mathematics of Wallpaper Patterns:

2 of 4 people found the following review helpful. Could be so much better if it was more accessible and included some programming infoBy Keith PetersI want to rate this book much higher. It's got some great material, fascinating formulas, beautiful graphics. However, the way the book was written makes it lose so much of its value, it makes me sad.First of all, the author identifies three target audiences: the working mathematician, the advanced undergraduate, and the "less experienced reader". "Less experienced" readers are still expected to have a knowledge of calculus, calculating derivatives of functions and integrals. So a lot of readers will find themselves lost almost immediately. This is not a bad thing in itself. But some effort to make the book more accessible would have given it a much wider audience, which is disappointing to me.Secondly, the book screams for its examples to be coded in graphics software. That is why most people will be buying this book - to make the pretty pictures they see on the cover and as they flip through it. But it is not a software oriented book at all. You will not find ANY code in this book, just pure math. There is not even any software on any site that you could download to experiment with. The author does mention that he has developed some software that he used to create the images in the book, and even shows screenshots of the interface.

But this software is not publicly available. He does mention that he sometimes gives the code out to people who correspond with him, if they promise not to complain about it. Of course, it's not TOO difficult to take the formulas and create a graphic rendering system for them, if you have experience as a developer. In summary, the book has some brilliant material, but if you are not experienced in math and programming, your head will be spinning half way through the first chapter. If you're a highly educated "working mathematician" you can sit back in your chair and read it and say, "yes... fascinating". If you have an advanced understanding in math AND are an excellent programmer, you'll be able to do some amazing things with the material. Personally, I'm pretty good with math and a very experienced programmer, so I can render a lot of the formulas, but a lot of the theory is going way over my head. 0 of 1 people found the following review helpful. Five Stars By Richard C Manchester Bought for one of my sons who found it a real challenge, but very instructive! 0 of 1 people found the following review helpful. Five Stars By Mike Jardin Great! Love it!

This lavishly illustrated book provides a hands-on, step-by-step introduction to the intriguing mathematics of symmetry. Instead of breaking up patterns into blocks a sort of potato-stamp method Frank Farris offers a completely new waveform approach that enables you to create an endless variety of rosettes, friezes, and wallpaper patterns: dazzling art images where the beauty of nature meets the precision of mathematics. Featuring more than 100 stunning color illustrations and requiring only a modest background in math, *Creating Symmetry* begins by addressing the enigma of a simple curve, whose curious symmetry seems unexplained by its formula. Farris describes how complex numbers unlock the mystery, and how they lead to the next steps on an engaging path to constructing waveforms. He explains how to devise waveforms for each of the 17 possible wallpaper types, and then guides you through a host of other fascinating topics in symmetry, such as color-reversing patterns, three-color patterns, polyhedral symmetry, and hyperbolic symmetry. Along the way, Farris demonstrates how to marry waveforms with photographic images to construct beautiful symmetry patterns as he gradually familiarizes you with more advanced mathematics, including group theory, functional analysis, and partial differential equations. As you progress through the book, you'll learn how to create breathtaking art images of your own. Fun, accessible, and challenging, *Creating Symmetry* features numerous examples and exercises throughout, as well as engaging discussions of the history behind the mathematics presented in the book.

Honorable Mention for the 2016 PROSE Award in Mathematics, Association of American Publishers "[A] beautifully illustrated guide to fusing mathematical and artistic creativity to generate fascinating and visually appealing designs." -- Evelyn Lamb, *Scientific American* "[A] beautiful book. . . . [Creating Symmetry] is a thoughtful, innovative and interesting piece of work, discussing material that the author is obviously very enthusiastic about; such enthusiasm is, as is often the case, contagious." -- Mark Hunacek, MAA s "This is a marvelous book that brings groups, and along the way many other mathematical concepts, to the reader in an unconventional way." -- Adhemar Bultheel, *European Mathematical Society Bulletin* "Mathematics students thus get a visually rich path into group theory that compellingly informs even first steps with ideas usually deemed advanced. Braver art students will find motivation and the means to learn some mathematics they can put right to use." -- D. V. Feldman, *Choice* "[A] delightful showcase of artistic applications of complex wave functions. . . . This attractive book will appeal to and inspire a broad range of practitioners including complex analysts, mathematical artists, and advanced undergraduates." -- Heidi Burgiel, *College Mathematics Journal* From the Back Cover "Frank's rich artistry vibrantly enlivens the mathematics of symmetry. What a treat for the eye and the mind!" -- Michael Starbird, *The University of Texas at Austin* "The imagery in this book is attractive and engaging, and illustrates Farris's excellent command of the mathematical techniques and his strong sense of visual design. General readers will appreciate the beauty of the images and will find incentive to learn how mathematics can be used in creative ways to produce art." -- George W. Hart, coauthor of *Zome Geometry: Hands-on Learning with Zome Models* "This unique book takes an entirely new approach to creating images with symmetry. The pictures are compelling and Farris presents the material in an inviting manner. He leads readers into interesting areas of mathematics not usually encountered in undergraduate courses, and rarely, if ever, encountered as a way to study symmetry." -- Doris Schattschneider, author of *M. C. Escher: Visions of Symmetry* "In *Creating Symmetry*, Farris explores the concept of symmetry and its application to creating artistic patterns in two dimensions. The result is a set of algorithmic tools for transforming ordinary photographs into rosettes and wavelike murals decorated with colorful swirls and gradients. It is difficult to imagine a more engaging focus for teaching the mathematics of symmetry." -- Kenneth Libbrecht, author of *The Secret Life of a Snowflake: An Up-Close Look at the Art and Science of Snowflakes* "Creating Symmetry is a stunning fusion of mathematics and art, applying the mathematics of symmetry to create beautiful patterns. But the beauty runs far deeper: the mathematical insights involved are supremely beautiful in their own right. If you want to know why there are exactly 17 basic types of wallpaper, what their structure is, and which other mathematical ideas are related, or if you just want to see some amazing pictures, look no further." -- Ian Stewart, author of *Professor Stewart's Casebook of Mathematical Mysteries* "Creating Symmetry is a remarkable, one-of-a-kind book, with unique and beautiful pictures. While plane symmetry groups have been the subject of other

books, Farris's approach is fresh and accessible."--John Stillwell, author of *Roads to Infinity: The Mathematics of Truth and Proof*"Farris has written an amazing book. His vision is expansive, his enthusiasm is contagious, and the illustrations are intriguing and beautiful. Farris enables readers to gain a deep appreciation and understanding of the mathematics behind symmetry and his novel approach to creating symmetrical patterns. No other book comes close."--Thomas Q. Sibley, author of *Foundations of Mathematics*"This book introduces readers to the fascinating interplay of geometry, complex function theory, abstract algebra, complex domain coloring, Fourier series, and aesthetics in producing really beautiful images. Farris shows how structured forms of symmetry can be constructed in a disciplined way from first mathematical principles, and how artistically pleasing images can communicate sophisticated but understandable mathematics."--Paul Zorn, author of *Understanding Real Analysis*About the AuthorFrank A. Farris teaches mathematics at Santa Clara University. He is a former editor of *Mathematics Magazine*, a publication of the Mathematical Association of America. He lives in San Jose, California.