

Springer

1st
edition

2014, XVIII, 220 p.

Printed book

Hardcover

Printed book

Hardcover

ISBN 978-3-319-03451-5

\$ 119,99

Available

Discount group

Professional Books (2)

Product category

Monograph

Series

Synthese Library

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Softcover

ISBN 978-3-319-35381-4

Philosophy : Logic

Montano, Ulianov, Mexico City, Mexico

Explaining Beauty in Mathematics: An Aesthetic Theory of Mathematics

- **Most comprehensive, systematic and scientifically informed study of aesthetic judgments in mathematics**
- **Develops a naturalistic aesthetic theory that accounts for aesthetic phenomena in mathematics**
- **Draws upon a broad spectrum of insights, from experimental psychology to the history of science and linguistics, to advance a rigorous and comprehensive theory of beauty and the aesthetic in mathematics**

This book develops a naturalistic aesthetic theory that accounts for aesthetic phenomena in mathematics in the same terms as it accounts for more traditional aesthetic phenomena. Building upon a view advanced by James McAllister, the assertion is that beauty in science does not confine itself to anecdotes or personal idiosyncrasies, but rather that it had played a role in shaping the development of science. Mathematicians often evaluate certain pieces of mathematics using words like beautiful, elegant, or even ugly. Such evaluations are prevalent, however, rigorous investigation of them, of mathematical beauty, is much less common. The volume integrates the basic elements of aesthetics, as it has been developed over the last 200 years, with recent findings in neuropsychology as well as a good knowledge of mathematics. The volume begins with a discussion of the reasons to interpret mathematical beauty in a literal or non-literal fashion, which also serves to survey historical and contemporary approaches to mathematical beauty. The author concludes that literal approaches are much more coherent and fruitful, however, much is yet to be done. In this respect two chapters are devoted to the revision and improvement of McAllister's theory of the role of beauty in science. These antecedents are used as a foundation to formulate a naturalistic aesthetic theory. The central idea of the theory is that aesthetic phenomena should be seen as constituting a complex dynamical system which the author calls the aesthetic as process theory.

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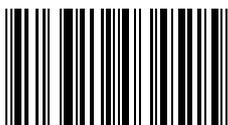
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