

چند مرجع برای فلسفه ریاضی معاصر

- از فهرست A : Bostock, Colyvan, Linnebo and Shapiro
- از فهرست B : Hart, Irvine and Shapiro
- مقاله «گرایش‌های موجود در فلسفه ریاضیات» از حمید وحید
نشر ریاضی، سال ۱۰، شماره ۲ (۱۳۷۸)، ۷-۲۰
- مقاله «افسانه‌گرایی و استعاره در فلسفه ریاضیات» از سیاوش شهشهانی
فرهنگ و اندیشه ریاضی، شماره ۶۱ (پاییز و زمستان ۱۳۹۶)، ۱-۱۵

Imre Lakatos (1922-1974)

- ***Proofs and Refutations: The Logic of Mathematical Discovery*, 1976**
- ***The Methodology of Scientific Research Programs* (ed. J. Worrall and G. Currie), 1978**
- ***Mathematics, Science and Epistemology* (ed. J. Worrall and G. Currie), 1978**
- ***Criticism and the Growth of Knowledge* (ed. I. Lakatos and A. Musgrave), 1970**
- T. Koestler ***Lakatos Philosophy of Mathematics*, 1991**

تأثیر پوپر و پولیا بر لاکاتش

- Karl Popper:

The Logic of Scientific Discovery, 1934

Conjectures and Refutations, 1963

- George Pólya:

رویکرد شبه تجربی اکتشافی در ریاضیات

Mathematics and Plausible Reasoning (2 volumes), 1954

How to Solve It, 1945 (2004)

(Method of Heuristics)

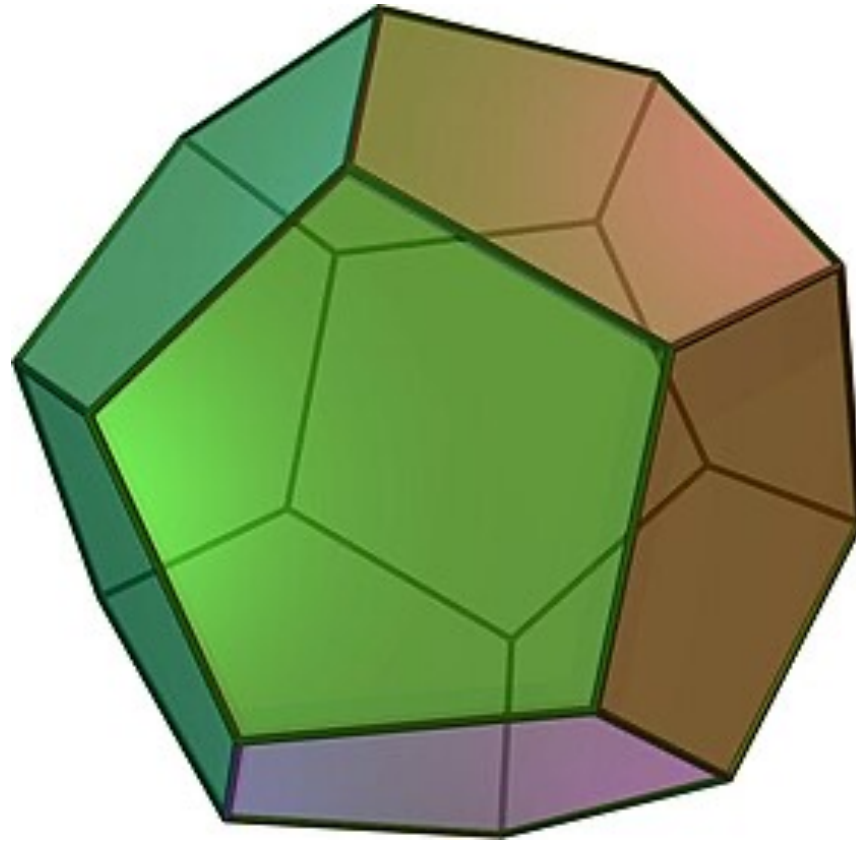
from *Proofs and Refutations*, p.144

... deductivist style tears the proof-generated definitions off their 'proof ancestors', presents them out of the blue, in an artificial and authoritarian way. It hides the global counterexamples which led to their discovery. Heuristic style on the contrary highlights these factors. It emphasizes the problem situation: it emphasizes the 'logic' that gave birth to the new concept.

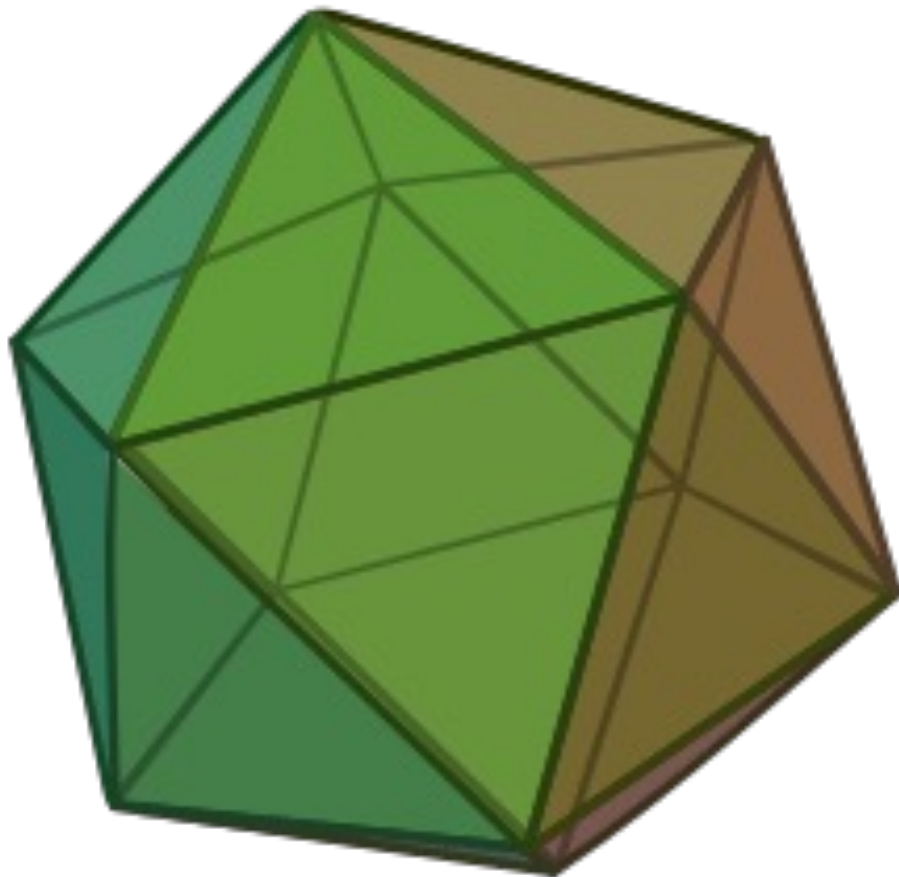
from *Proofs and Refutations*, p.146

Mathematical activity is a human activity. Certain aspects of this activity – as of any human activity – can be studied by psychology, others by history. Heuristic is not primarily interested in these aspects. But mathematical activity produces mathematics. Mathematics, this product of human activity, ‘alienates itself’ from the human activity which has been producing it. It becomes a living, growing organism, that acquires a certain autonomy from the activity which has produced it; it develops its own autonomous laws of growth, ...

Dodecahedron: $20 - 30 + 12 = 2$



Icosahedron: $12 - 30 + 20 = 2$



اقوال چند فیزیک‌دان معاصر از رابطه ریاضیات و فیزیک

- E. Wigner 'The Unreasonable Effectiveness of Mathematics in the Natural Sciences' *Communications in Pure and Applied Mathematics*, Vol.XIII, 1-14 (1960)
- F. Dyson 'Missed Opportunities' *Bulletin Amer. Math. Soc.*, Vol.78, No. 5, September 1972
- S. Weinberg in 'Mathematics: The Unifying Thread in Science' *Notices Amer. Math. Soc.*, Vol.33, No.5, 725-728 (October 1986)

چند اثر معاصر قابل تامل

- Yu. I. Manin ***Mathematics and Physics***, 1981
- ----- ***Mathematics and Metaphor***, 2000
- J.-P. Changeux and A. Connes ***Conversations on Mind, Matter and Mathematics***, 1995
- A. Jaffe and F. Quinn 'Theoretical Mathematics: Toward a cultural synthesis of mathematics and theoretical physics,' in *Bulletin Amer. Math. Soc.* 30(1), 1994. Responses: *Bulletin Amer. Math. Soc.* 30(2).

سه کتاب عمومی پوانکاره پیرامون ریاضیات، منطق و فیزیک

- ***Science and Hypothesis*, 1905**
- ***The Value of Science*, 1913**
- ***Science and Method*, 1914**

تاریخ‌های بالا مربوط به نشر ترجمه انگلیسی کتاب‌ها است. سه کتاب در یک مجلد زیرنیز به چاپ رسیده است:

- ***The Value of Science: Essential Writings of Henri Poincaré***

Edited by Stephen J. Gould, 2001.

نمونه گرایش‌های متاخر

	ریاضیات	فیزیک
پایتم	واقع‌گرا	واقع‌گرا
فیلد	نام‌گرا	واقع‌گرا
فن فراسن	نام‌گرا	نام‌گرا

Debate on Application of Mathematics

- H. Putnam **Philosophy of Logic**, 1971
- ----- 'What is Mathematical Truth?' in *Historica Mathematica*, 2 (1975), 529-533. Also in ***Mathematics, Matter and Method, Philosophical Papers, Vol.1***, 1975
- H. Field ***Science Without Numbers: A defence of nominalism***, 1980
- B. Van Fraassen ***The Scientific Image***, 1980

Realism: Classical and Modern

- In [the Aristotelian] tradition, the realists held that regularities in the natural phenomena must have a reason (cause, explanation), and they sought this reason in the causal properties, constituting what they called the substantial forms or natures, of the substances involved in the natural processes.
 - B. van Fraassen in *The Scientific Image*

-
- A realist, with respect to a given theory or discourse holds that (1) the sentences of that theory or discourse are true or false; and (2) that what makes them true or false is something *external*.
 - H. Putnam in 'What is Mathematical Truth'