The following is a book I'm working on:

[Unity, Disunity and Pluralism in Science](http://arxiv.org/abs/1110.6545)

The following are papers on the foundations of Statistical Mechanics, Quantum Mechanics, Quantum Field Theory, Unified Field Theories, and Quantum Geometrodynamics:

[Phase transitions and Critical Phenomena](http://alpha.math.uga.edu/~davide/Phase_Transitions_and_Critical_Phenomena.pdf)
*unpublished*

[The Mathematical Foundations of Quantum Mechanics](http://alpha.math.uga.edu/~davide/The_Mathematical_Foundations_of_Quantum_Mechanics.pdf)
*published as:* <http://www.springerlink.com/content/g047367766j30t07/>

[The Mathematical Foundations of Quantum Field Theory](http://alpha.math.uga.edu/~davide/The_Mathematical_Foundations_of_Quantum_Field_Theory.pdf)
*published as:* <http://www.springerlink.com/content/m474808n785m3491/>

[Einstein's Dream](http://alpha.math.uga.edu/~davide/Einsteins_Dream.pdf)
Lecture notes of lecture given at the international conference *The Nature of Reality* honoring the 150th birthday of Tagore, held at the Indian Institute for Advanced Study in Shimla, India, March 4-6, 2012.

[Atomic Discourse in the Feynman Lectures on Physics](http://alpha.math.uga.edu/~davide/Atomic_Discourse_in_the_Feynman_Lectures_on_Physics.pdf)
*published as:* <http://www.springerlink.com/content/v60l01k93n272141/>

[The Structure of Superspace](http://alpha.math.uga.edu/~davide/The_Structure_of_Superspace.pdf)
*published in:* Studies in Topology, Academic Press, 1975
(This paper is related to Wheeler's notions of quantum geometrodynamics; it includes my defining a complete metric on the space of isometry classes of compact metric spaces-it was later rediscovered by Gromov and is called the Gromov metric.)

The following are a survey article and a book on pro-homotopy theory and lecture notes on Adelic Homotopy Theory:

[Čech Theory: Its Past, Present and Future](http://projecteuclid.org/DPubS/Repository/1.0/Disseminate?handle=euclid.rmjm/1250128825&view=body&content-type=pdf_1)
*published in:* The Rocky Mountain Journal of Mathematics, 1976

[Čech and Steenrod Homotopy Theories with Applications to Geometric Topology](http://alpha.math.uga.edu/~davide/Cech_and_Steenrod_Homotopy_Theories_with_Applications_to_Geometric_Topology.pdf)
Spring Lecture Notes in Mathematics, 1976

[Adelic Homotopy Theory](http://alpha.math.uga.edu/~davide/Adelic_Homotopy_Theory.pdf)
circulated lecture notes, 2010

The following are three unpublished works on the Atiyah-Singer Index Theorem and related topics:

[The Index Program for K-Theory with Local Coefficients](http://alpha.math.uga.edu/~davide/The_Index_Program_for_K-Theory_with_Local_Coefficients.pdf)

[Lectures on Index Theory: Lecture I Operator Theory and Topology](http://alpha.math.uga.edu/~davide/Lectures_on_Index_Theory__Lecture_I_Operator_Theory_and_Topology.pdf)
circulated notes, IAS, 1971

[Lectures on Index Theory: Lecture II Index Theory for Toeplitz Operators](http://alpha.math.uga.edu/~davide/Lectures_on_Index_Theory__Lecture_II_Index_Theory_for_Toeplitz_Operators.pdf)
circulated notes, IAS, 1971

The following are papers on the foundations and philosophy of mathematics and category theory:

[The Category of Categories as a Model for the Platonic World of Forms](http://alpha.math.uga.edu/~davide/The_Category_of_Categories_as_a_Model_for_the_Platonic_World_of_Forms.pdf)
circulated notes, Battelle Memorial Institute, 1968

[Aesthetic Considerations in the Foundations of Mathematics](http://alpha.math.uga.edu/~davide/Aesthetic_Considerations_in_the_Foundations_of_Mathematics.pdf)
circulated notes, Battelle Memorial Institute, 1968

The following is a paper on the psychology of perception:

[Modern Physics and Gibsonian Psychology](http://alpha.math.uga.edu/~davide/Modern_Physics_and_Gibsonian_Psychology.pdf)
*published as:* [Some Gibsonian perspectives on the ways that psychologists use physics](http://www.sciencedirect.com/science/article/pii/0001691882900324)

[Psychology and physics: A reply to our critics](http://www.sciencedirect.com/science/article/pii/0001691883900562)

The following are papers on patent law:

[Platonism Is the Law of the Land](http://alpha.math.uga.edu/~davide/Platonism_is_the_Law_of_the_Land.pdf)

[Is the US patent system too restrictive?](http://newlegalreview.cpaglobal.com/us-patent-system-restrictive/)

Work in Progress:

[Is Mathematics Invented or Discovered?](http://alpha.math.uga.edu/~davide/Is_Mathematics_Invented_or_Discovered.pdf)

[Aristotle's Mistake](http://alpha.math.uga.edu/~davide/Aristotles_Mistake.pdf)

[Big Bang Model](http://alpha.math.uga.edu/~davide/Big_Bang_Model.pdf)

[Lecture on Einstein's UNIFIED FIELD THEORY](http://alpha.math.uga.edu/~davide/Lecture_on_Einsteins_UNIFIED_FIELD_THEORY.pdf)

[Post retirement flourishing](http://alpha.math.uga.edu/~davide/Post_retirement_flourishing.pdf)

[What should you do when you don't have to do anything?](http://alpha.math.uga.edu/~davide/What_should_you_do_when_you_dont_have_to_do_anything.pdf)

[THE MATH MYTH](http://alpha.math.uga.edu/~davide/THE_MATH_MYTH.pdf)
*published as:* [Revolutionary Implications](http://www.ams.org/notices/201007/rtx100700822p.pdf) (edited; shorter)

[Mathematics and Logic](http://www.ams.org/notices/201203/rtx120300366p.pdf)

Remarks:

[Remarks on The Hard Problem of Consciousness](http://alpha.math.uga.edu/~davide/Remarks_on_The_Hard_Problem_of_Consciousness.pdf)

[Generalizations of Quantum Logic](http://alpha.math.uga.edu/~davide/Generalizations_of_Quantum_Logic.pdf)

[Hyperfunction Geometry](http://alpha.math.uga.edu/~davide/hyperfunction.rtf)

[Padic Homotopy Theory](http://alpha.math.uga.edu/~davide/padic.rtf)

[Pauli was Wrong](http://alpha.math.uga.edu/~davide/Pauli.rtf)

[The Purpose of Life](http://alpha.math.uga.edu/~davide/the_purpose.rtf)

[There are three styles of knowing](http://alpha.math.uga.edu/~davide/There_are_three_styles_of_knowing.pdf)

[Perspectivism](http://alpha.math.uga.edu/~davide/Perspectivism.pdf)

[Superposition](http://alpha.math.uga.edu/~davide/Superposition.pdf)

[In Principle vs In Practice](http://alpha.math.uga.edu/~davide/In_Principle_vs_In_Practice.pdf)