



## Gregory Chaitin CV

Gregory Chaitin is at the IBM Watson Research Center in New York. In the mid 1960s, when he was a teenager, he created algorithmic information theory (AIT), which combines, among other elements, Shannon's information theory and Turing's theory of computability. In the four decades since then he has been the principal architect of the theory. Among his contributions are the definition of a random sequence via algorithmic incompressibility, [his information-theoretic approach to Gödel's incompleteness theorem](#), and the [celebrated number  \$\Omega\$](#) . His [work on Hilbert's 10th problem](#) has shown that in a sense there is randomness in arithmetic, in other words, that God not only plays dice in quantum mechanics and nonlinear dynamics, but even in elementary number theory. His latest achievements have been to transform AIT into a theory about the size of real computer programs, [programs that you can actually run](#), and his recent discovery that [Leibniz anticipated AIT](#) (1686). He is the author of nine books: [Algorithmic Information Theory](#) published by Cambridge University Press; [Information, Randomness & Incompleteness](#) and [Information-Theoretic Incompleteness](#), both published by World Scientific; [The Limits of Mathematics](#), [The Unknowable](#), [Exploring Randomness](#) and [Conversations with a Mathematician](#), all published by Springer-Verlag; [From Philosophy to Program Size](#), published by the Tallinn Institute of Cybernetics; and [Meta Math!](#), published by Pantheon. In 1995 he was given the degree of doctor of science *honoris causa* by the University of Maine. In 2002 he was given the title of *honorary professor* by the University of Buenos Aires. In 2004 he was elected a *corresponding member* of the [Académie Internationale de Philosophie des Sciences](#). He is also a *visiting professor* at the Computer Science Department of the University of Auckland, and the *honorary president* of the scientific committee of the [Valparaiso Complex Systems Institute](#).

[For more detailed biographies, see [Chapter VI](#) of [The Unknowable](#), and the "[A Life in Math](#)" chapter of [Information-Theoretic Incompleteness](#).]

### Latest Publications

- [Meta Math!](#)  
Pantheon, October 2005
- [Epistemology as information theory: from Leibniz to  \$\Omega\$](#)   
June 2005
- [Algorithmic Information Theory](#)  
Paperback edition, December 2004
- [How real are real numbers?](#)  
November 2004
- [Irreducible complexity in pure mathematics](#)  
November 2004
- [Leibniz, information, math and physics](#)  
Löffler, Weingartner, *Wissen und Glauben*, September 2004  
([pdf version](#))
- [Leibniz, randomness & the halting probability](#)  
*Mathematics Today*, August 2004
- [On the intelligibility of the universe and the notions of simplicity, complexity and irreducibility](#)  
Hogrebe, Bromand, *Grenzen und Grenzüberschreitungen*, June 2004  
([pdf version](#))

- [Turkish translation of A century of controversy over the foundations of mathematics](#)  
Gür, *Matematik Felsefesi*, April 2004
- [Grenzen der Berechenbarkeit](#)  
*Spektrum der Wissenschaft*, February 2004
- [Thoughts on the Riemann hypothesis](#)  
*The Mathematical Intelligencer*, January 2004
- [L'univers est-il intelligible?](#)  
*La Recherche*, December 2003  
([html version](#))
- [Portuguese translation of Conversations with a Mathematician](#)  
*Gradiva*, November 2003
- [Interview with performance artist Marina Abramovic](#)  
Obrist, *Interviews*, 2003
- [From Philosophy to Program Size](#)  
Tallinn Institute of Cybernetics, 2003
- [Japanese translation of Conversations with a Mathematician](#)  
Iwanami Shoten, 2003
- [Two philosophical applications of algorithmic information theory](#)  
*Proceedings DMTCS'03*, 2003  
([pdf version](#))
- [Ordenadores, paradojas y fundamentos de las matemáticas](#)  
*Investigación y Ciencia*, 2003
- [Randomness and mathematical proof](#)  
Gregersen, *From Complexity to Life*, 2003
- [The unknowable](#)  
Miyake, Obrist, *Bridge the Gap?*, 2002
- [Complexité, logique et hasard](#)  
Benkirane, *La Complexité*, 2002
- [Meta-mathematics and the foundations of mathematics](#)  
*EATCS Bulletin*, 2002  
([pdf version](#))

[Italian translation: *Fondamenti della matematica e teoria algoritmica dell'informazione*, in *Enciclopedia del Novecento: Supplemento III*, volume H-W, 2004, pages 111-116.]

- [Paradoxes of randomness](#)  
*Complexity*, 2002  
([pdf version](#))
- [Computers, paradoxes and the foundations of mathematics](#)  
*American Scientist*, 2002  
([html version](#))

[In Spanish. In German.]

- [Conversations with a Mathematician](#)  
Springer-Verlag, 2002
- [Japanese translation of The Unknowable](#)  
SIB-Access, 2001
- [Exploring Randomness](#) (Corrected 2nd printing)  
Springer-Verlag, 2001
- [Japanese translation of The Limits of Mathematics](#)  
SIB-Access, 2001
- Italian translation of [A century of controversy over the foundations of mathematics](#)  
Manca, *Logica matematica*, 2001
- [Exploring Randomness](#)  
Springer-Verlag, 2001  
(with Java applet [LISP interpreter](#))

- [A century of controversy over the foundations of mathematics](#)  
*Complexity*, 2000  
([pdf version](#))

[[Spanish translation](#) prepared by Andres Becerra Sandoval,  
estudiante de la Universidad del Valle - Colombia]

- [A century of controversy over the foundations of mathematics](#)  
Calude & Paun, *Finite vs. Infinite*, 2000

[[Turkish translation](#) prepared by Bekir S. Gür]

- [Hasard et imprévisibilité des nombres](#)  
*La Recherche*, 1999
- Calude, Chaitin, [Randomness everywhere](#)  
*Nature*, 1999
- [The Unknowable](#)  
Springer-Verlag, 1999  
(with Java applet [LISP interpreter](#))
- [Elegant LISP programs](#)  
Calude, *People & Ideas in Theoretical Computer Science*, 1999
- [The Limits of Mathematics](#)  
Springer-Verlag, 1998  
(with Java applet [LISP interpreter](#))
- [Gödel's theorem and information](#)  
[Information-theoretic computational complexity](#)  
Tymoczko, *New Directions in the Philosophy of Mathematics*, 1998
- [An invitation to algorithmic information theory](#)  
*DMTCS'96 Proceedings*, 1997
- [The limits of mathematics](#)  
*J.UCS*, 1996
- [How to run algorithmic information theory on a computer](#)  
*Complexity*, 1996
- [A new version of algorithmic information theory](#)  
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- [Randomness in arithmetic and the decline & fall of reductionism in pure mathematics](#)  
Cornwell, *Nature's Imagination*, 1995
- [The Berry paradox](#)  
*Complexity*, 1995
- [Program-size complexity computes the halting problem](#)  
*EATCS Bulletin*, 1995
- [Responses to "Theoretical mathematics: Toward a cultural synthesis of mathematics and theoretical physics", by A. Jaffe and F. Quinn](#)  
*AMS Bulletin*, 1994
- [Randomness in arithmetic and the decline & fall of reductionism in pure mathematics](#)  
*EATCS Bulletin*, 1993

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- [On the number of  \$n\$ -bit strings with maximum complexity](#)  
*Applied Mathematics & Computation*, 1993
- [A random walk in arithmetic](#)  
Hall, *Exploring Chaos*, 1993  
Hall, *The New Scientist Guide to Chaos*, 1992