

1. Record Nr.	UNINA9910254579903321
Autore	Bascom Gavin
Titolo	On the Inside of a Marble : From Quantum Mechanics to the Big Bang / / by Gavin Bascom
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-60690-5
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (116 pages) : illustrations
Collana	Astronomers' Universe, , 1614-659X
Disciplina	530.12
Soggetti	Astronomy Quantum physics Cosmology Physics Popular Science in Astronomy Quantum Physics Popular Science in Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	1. Introduction -- 2. Narrative Time -- 3. Narrative Space -- 4. Narrative Energy -- 5. A Universe Far From Equilibrium -- 6. A Statistical Mechanical View of the Universe -- 7. Putting the Future at the Beginning.
Sommario/riassunto	Keeping in mind that we can only see the universe from the comfort of our home galaxy, Bascom begins his text by meticulously laying the necessary groundwork to understand the Big Bang's mathematics without using any equations. He then paints a freeze-frame picture of our universe as if we had taken a three-dimensional picture with a giant camera. Within this picture, he traces forces beginning with the smallest (a single atom) to the biggest (the cosmos), keeping in mind that in this frozen moment everything further away from the observer spatially is also further away from the observer in time; that is, older. Soon a very real and very vivid image of the Big Bang appears (especially in things that are loud or hot), echoing down through time and into our everyday lives, reflected in every atom during every

measurement. Then, slowly but deliberately, Bascom unfreezes this picture, ratcheting each moment from one to the next, showing us how and why quantum particles are constantly in contact with the Big Bang and why that allows the particles to pop in and out of existence from moment to moment, what a photon is, and what exactly we mean when we say that free space has energy. Whether you're interested in the Big Bang, the weirdness of quantum mechanics, or simply enjoy thinking about the biggest, loudest, and oldest things in our universe, this book will help you question your deepest notions about time and space, while staying firmly rooted in empirical observation. Throughout the text, Bascom sidesteps traditional non-fiction modes, using colorful explanations and vivid imagery to place the reader in simultaneous contact with both the Big Bang and fundamental particles. As a result, Bascom provides the tools and language necessary to contemplate the strangeness of our universe.
