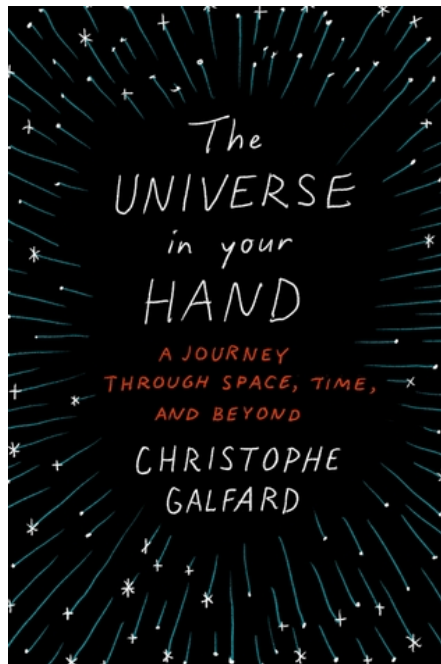




The Universe in Your Hand: A Journey Through Space, Time, and Beyond

Christophe Galfard

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"If Ms. Frizzle were a physics student of Stephen Hawking, she might have written THE UNIVERSE IN YOUR HAND, a wild tour through the reaches of time and space, from the interior of a proton to the Big Bang to the rough suburbs of a black hole. It's friendly, excitable, erudite, and cosmic."

—Jordan Ellenberg, *New York Times* bestselling author of *How Not To Be Wrong*

Quantum physics, black holes, string theory, the Big Bang, dark matter, dark energy, parallel universes: even if we are interested in these fundamental concepts of our world, their language is the language of math. Which means that despite our best intentions of finally grasping, say, Einstein's Theory of General Relativity, most of us are quickly brought up short by a snarl of nasty equations or an incomprehensible graph.

Christophe Galfard's mission in life is to spread modern scientific ideas to the general public in entertaining ways. Using his considerable skills as a brilliant theoretical physicist and successful young adult author, *The Universe in Your Hand* employs the immediacy of simple, direct language to show us, not explain to us, the theories that underpin everything we know about our universe. To understand what happens to a dying star, we are asked to picture ourselves floating in space in front of it. To get acquainted with the quantum world, we are shrunk to the size of an atom and then taken on a journey. Employing everyday similes and metaphors, addressing the reader directly, and writing stories rather than equations renders these astoundingly complex ideas in an immediate and visceral way.

Utterly captivating and entirely unique, *The Universe in Your Hand* will find its place among other classics in the field.

The Universe in Your Hand: A Journey Through Space, Time, and Beyond Details

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From Reader Review The Universe in Your Hand: A Journey Through Space, Time, and Beyond for online ebook

Abigail says

Czyta?am t? ksi??k? powoli, po rozdziale raz na jaki? czas, nie poch?on??am jej ca?ej za jednym zamachem i przez to: a) nawet nie spostrzeg?am si? kiedy j? sko?czy?am i b) zapomnia?am doda? jej do aktualnie czytanych na Goodreads.

Jestem totalnym laikiem je?eli chodzi o fizyk?, kosmos i tego typu sprawy, wi?c kiedy us?ysza?am o "Wszech?wiat w twojej d?oni" wiedzia?am, ?e to b?dzie ksi??ka dla mnie.

I faktycznie: jak bardzo nie lubi?abym fizyki to jednak ksi??ka Galfarda otworzy?a mi oczy na niekt?re rzeczy i rzeczywi?cie osi?gn??a to, co autor sobie za?o?y? - pokaza?a mi w prosty i przyst?pny spos?b pi?kno wszech?wiata.

Dzi?ki Galfard za t? ksi??k? ♥

Carlos says

Wow this book kicked ass... It was so good, it is a perfect marriage between perfect narrative and interesting context while at the same time not letting anything out . If you are interested in physics, black holes, string theory and quantum science but feel intimidated to read about it, make this your introductory book because it will explain everything in layman terms and you'll have fun learning all the components that make up our known universe while getting a glimpse at our future in science. I couldn't recommend this book more ,please read it as this would help anyone to broaden their horizons.

Laura says

He hecho un viaje al mismísimo universo. He visto de cerca los planetas, las estrellas, las galaxias... y he ido tan lejos que me he tropezado con un muro. Un muro que delimita nuestro universo visible. Un universo finito. He conseguido viajar un poco más allá de él, hasta el nacimiento del espacio-tiempo. Me he encontrado con partículas con propiedades misteriosas, como la de estar en muchos sitios a la vez al mismo tiempo. Me he encogido para poder entrar en una de esas partículas y poder conocer más íntimamente a los electrones, los fotones, los protones, los neutrones, los quarks y los gluones. He viajado a velocidades similares a las de la luz y me he adentrado en un agujero negro. Y no solo eso, he podido ver otras realidades, otros universos paralelos, las cuerdas cuánticas, las branas, los campos que componen nuestra realidad.

Ha sido toda una aventura. Alucinante. Emocionante. Estremecedora.

Si algo de todo esto os resulta mínimamente interesante, os recomiendo encarecidamente este libro. Para alguien que no entiende de física o que tiene los conocimientos básicos del instituto y de bachillerato, va a ser una experiencia maravillosa y enriquecedora.

El autor hace de lo complejo algo accesible, entendible. Aporta mucha información pero de una manera

amena. No se hace pesado, ni denso, al contrario, solamente quieres que te cuente más, que te abra más puertas. Sin duda en mí ha creado la necesidad de seguir profundizando en todo ello. Y ha supuesto también una especie de terapia, porque me ha ayudado a relativizar los problemas, a desestresarme, a dejar de preocuparme por cosas mundanas sin importancia, a sentirme más pequeña, más humilde. Uno de esos libros que, sin duda, va a ocupar un puesto en mi lista de favoritos.

Anna says

να εκπληκτικ? βιβλ?ο εκλα?κευμ?νης φυσικ?ς που θα το πρ?τεινα ανεπιφ?λακτα ως δ?ρο για ?ποιον ?φηβο γνωρ?ζετε που θα του ?ρεσε να ασχοληθε? με τη Φυσικ?!

Ιδανικ? επ?σης για ?σους θ?λουν να μ?θουν π?ντε απλ? πρ?γματα για τη σ?γχρονη Φυσικ?!

P42 says

RECENZJA FILMOWA - <https://youtu.be/pzB1yKDT04Q>

Najważniejsza rzecz - jest to książka o tzw. fizyce współczesnej, dodatkowo uzupełniona o najnowsze wiadomości.

Żeby nie było, ?e nie ostrzegam :D

- + lekko fabularny wątek nadaje książce wyjątkowego uroku

- + humor narratora

- + przez większość lektury książka jest bardzo przystępna dla osób niezaznajomionych, ale ciekawych fizyki

- + tylko jeden wzór w całej książce :D

- + ale to napewno nie jest łatwa książka ;)

- powtarzanie rzeczy wcześniej opowiedzianych i zapowiadanie tego, co będzie za 100 stron jest rozpraszające

No i to wydanie!! <3

Roxana says

This book has overwhelmed me so much! Such a brilliant description of modern astrophysics in a relatively accessible way. I can only say that I loved it and I would definitely recommend it to anyone interested in astronomy and astrophysics. 5/5.

Thuong Le says

If you're like me and you are really fascinated by the universe and how it was created (The Big Bang Theory), then you're going to want to pick this one up! I was browsing in Waterstones, (like I usually do) checking out the new releases when I saw this book, picked it up and thought, 'I need to read this!' I've had an interest in astronomy ever since I studied a small module of it in Science, but my knowledge of it has not progressed since then, so this book was the perfect opportunity for me to find out more about the universe.

This book is divided into 7 parts. Part 1 – 2 was easier to understand, but as we go into parts 3 – 7 of the book it gets a bit more complicated with cosmic, black holes, energy, quantum, vacuums and electrons. The only equation was $E = mc^2$ this made it a little less complicated.

I bookmarked the pages that were interesting to me and as for the rest, it was history! Aha, what I mean is it went through one ear and out the other.

“The Sun, being a star, is not a big ball of fire – fire needs oxygen, and although the Sun creates bits of it along with other elements, there's not enough free oxygen in outer space to sustain any fire whatsoever.”

It was very intriguing to learn about the sun. The sun is already half way into its life span but it has another 5 billion years before its energy, hydrogen and helium ran out and thus becoming a red giant. The sun is the sole reason why we're alive. Without the sun, the water will evaporate and Earth will not survive. Did you know the sun is actually white?! It's actually all the colours of the rainbow. Mind blown.

My cousin asked me a trick question: *Can the speed of light travel faster than time?* I said light travels faster. It was a right mild guess, as I had no idea. I just assume that maybe time is slower than light. I asked my colleague and she said that it's a trick question because light is controlled by time. According to the book, I have my answer at page 151:

“In outer space, light travels at around 300,000 kilometres per second.”

In Chapter 4 of Part 4 *A Drive into the Quantum World*, talks briefly about magnets and why it can't collide through a fridge – it will only be stuck to it because of electrons keeping them apart. I don't think I ever thought about magnets analytically much in Science, all I knew that it has a magnetic force that attracts metal. This is part of a quantum-mechanical principle called Pauli Exclusion Principle, discovered by Swiss theoretical physicist Wolfgang Pauli, who was also awarded the 1945 Noble Prize.

One thing I am curious about is: where did all the water come from?! It covers about 71% of the Earth. When the Earth first formed, it was constantly hit by comets and asteroids, and this is where the water came from. Having watched a documentary about it, it is still a mystery to me. This universe is a mystery... its often said that the universe was created 13.8 billion years ago but no one knows for sure, it could be more than that.

“Without radioactivity, life on Earth would be impossible.”

Polish French Scientist called Marie Curie, who is the first person ever to be awarded the Noble Prize in Physics, discovered radioactivity. Radioactivity is particles that released from nuclei because of nuclear instability.

Overall I give this a 3 solid stars. I think Galfard did a good job of writing it, so that everyone could follow and understand it, but I was still confused. Since I have no background in Science, this was still a struggle to read (the reason for my rating). That was how Science class was for me because I was always learning about metals and rocks, which didn't exactly, piqued my interest. But nonetheless, it provided me with an eye-opener that there is much much more to the universe than I imagined.

Vishy says

One of my alltime favourite books on physics for the general reader. Written by Christophe Galfard, who was at one time Stephen Hawking's student, it covers in wonderfully accessible prose all the important events, theories, personalities and gives us a glimpse into what is in store for the future - stuff like Relativity, Quantum mechanics, Black Holes, Origin of the Universe, the birth and death of stars, the Big Bang Theory etc. Galfard's wonderful sense of humour is infectious - I couldn't stop laughing at many points in the book. If I have compare this with competing works which cover similar themes - like books by Stephen Hawking, Roger Penrose, John Gribbin, Brian Greene, John Barrow, George Gamov, Bill Bryson - I think its closest competitors would be works by John Gribbin and Bill Bryson. If compares favourably with both of them, though Gribbin's works have more depth and Bryson covers all the sciences in his book. I would say that this is the best first introduction to physics for the general reader. If you love science, you will love this.

Alexander Páez says

Probablemente el mejor ensayo divulgativo sobre cositas cósmicas que he leído hasta ahora. A veces redundante en las analogías dummies (los granos de arena de una playa, etc), pero consigue que muchos conceptos complicadísimos sean entendibles a través de un texto. Quiero decir, habla de muchísimas cosas que se explican mejor con imágenes, vídeos e incluso fórmulas. Galfard lo consigue con palabras. Si os interesa el tema y queréis ese sentido de la maravilla estallando en vuestra cabeza, ultra recomendado.

Annina says

Was für ein Buch. Obwohl ich eine absolute Astrophysik-Laiin bin, verstand ich doch ein paar Abschnitte. Vieles ist zwar für mich immer noch absolut unvorstellbar, aber das liegt wohl mehr an mir als am Autor. Trotzdem war es faszinierend durch das Universum zu reisen. Ich werde es wohl noch kaufen, damit ich immer wieder mal ein Kapitel nachlesen kann. Empfehlenswert!

Max says

Popular science books about physics seem to fall into three types. Some are dense digging directly into the hard science. While they have much to offer, they can be frustratingly difficult. Some are lightweight resorting to extended analogies and oversimplifications. They can create the illusion of understanding rather than genuine understanding. Others try for the middle ground. Too often these alternate between oversimplifications and detailed science resulting in a disjointed narrative.

Galfard, an accomplished physicist who was mentored by Stephen Hawking, tries for the middle ground and largely succeeds. He lightens up on the details: only one well known equation, only the simplest math, the minimum of particle names and scientific lingo required to be coherent. Also important, Galfard manages to maintain a consistent level of detail throughout. He presents concepts in a straightforward way that doesn't diminish their meaning or their challenges to our intuition. With this style, he can't dig deeply into how scientists have formulated their theories, but he does a good job of presenting their conclusions.

Galfard uses a protagonist – you. You become an ethereal mind exploring the universe from the very large to the very small. At first I thought this approach was a little hokey, but I grew comfortable with it and found myself enjoying it. Galfard has a conversational style and a sense of humor that keeps you moving along. He did an excellent job of using his protagonist to visualize concepts. The travelogue helped tie ideas together giving the book a continuity often lacking in science books. It also served as a spacer giving a break between difficult sections.

Galfard's book is comprehensive. You travel through space to the end of the visible universe and along the way Galfard explains what you are seeing. He digs into general relativity as you slide through the curves of space time. He puts you on a rocket ship at near the speed of light to explain special relativity. He morphs you into a mini you to explore quantum mechanics and explain field theories. He takes you to a black hole then to the edge of a singularity and explains theories about the big bang, inflation and the multi-verse. He doesn't leave out dark matter or dark energy. At the end he ventures into pure theory discussing quantum gravity and string theory.

So despite the light touch in his presentation, the subject matter is not light. Galfard says his "ambition" is to leave no reader behind. While that may be a stretch, I think any reader with a genuine interest can get something out of this book. Galfard is an unusually skillful writer for a physicist and I think he hits a sweet spot offering substance without being intimidating. As someone who regularly reads this genre, I can't say there was much new. But I did like the way he showed the relationships and contradictions between theories, particularly field theories and theories of gravity and space-time, which he used to explain the need for theories of quantum gravity. I enjoyed my ride through space and the quantum and I think others who are fascinated by the cosmos will as well.

Loreta?ska says

"Comenzamos a comprender que no debíamos buscar el pasado sólo bajo nuestros pies, sino también en las estrellas."

Cynamonka says

Trudno jest oceniać księ?kę popularnonaukow?, która napisana jest trochę jak powie??, trochę jak wy?ad dla uczniów liceum i trochę jak faktyczna pozycja popularnonaukowa. Olbrzymim plusem dla wi?kszo?ci "cz?owieków" b?dzie to, ?e jest w niej tylko jeden (!!!) wzór. Wzór, który zna ka?dy z nas, wi?c nie ma problemu. Ale. Jak dla mnie momentami by?o zbyt chaotycznie (najbardziej chyba przy teorii kwantowej grawitacji i pól kwantowych) i ma?y robot w kształcie maszyny do wyrzucania tenisowych pi?ek, który wypływa? przez rur? cz?stki to by?o dla mnie za du?o.

Szkoda, że teorii strun po prostu jest tylko jeden, w sumie krótki rozdział. Dla mnie to jest właśnie ta rzecz, która w fizyce teoretycznej jest najciekawsza. Ale nie można mieć wszystkiego. To bardzo fajna, potrzebna i przystępnie napisana książka, która powinna ucieszyć każdego amatora fizyki teoretycznej niekoniecznie lubującego się we WZORACH ;)

Javier Santaolalla says

"No estás solo en el universo. Y no estás solo en este viaje por el universo. Estás tumbado mirando el cielo en una playa cuando alguien te coge la mano. Te guía en una odisea alucinante hasta los agujeros negros, las galaxias más lejanas y el inicio mismo del cosmos ..."

Es parte de la descripción de libro que aparece en la contraportada y la copio tal cual porque es muy descriptiva y fiel de lo que ocurre dentro de él.

Allí te vas a encontrar un viaje por la física, con mucha narrativa y un lenguaje casi poético, en un intento por hacerte evocar, imaginar, recrear... Así que lo tienes muy fácil:

if (te gusta este tipo de lenguaje y no tienes muchos conocimientos de física)

CÓMPRATE YA ESTE LIBRO, TE VA A ENCANTAR;

else

TOSTÓN;

Tiene un grandísimo mérito y un gran valor colocar tanto conocimiento (es doctor en física por la Universidad de Cambridge y alumno de Hawking) en términos tan básicos, con símiles MUY acertados, dignos de aplaudir. Solo es una pena, para un lector avanzado, que se quedara ahí, en conocimientos tan básicos. Algo que el lector que se inicia seguro que aplaude con vigor. Yo... me salté páginas enteras. Libros así son necesarios y no puedo sino elogiar el trabajo de Christophe. ¡A leer, malditos!

Miquel Reina says

I read this book without any expectations and quickly I realized that this, was an amazing book with an amazing adventure. The book mixes a novelistic structure with a learning style and I loved this combination. I think that the idea of explaining hard and abstract concepts from physics and astronomy using a narrative thread that connects and guides the reader in a kind of journey is perfect. I highly recommend this book to all astronomy and physics fans who want to enjoy a space adventure.

Spanish version:

Empecé a leer este libro sin ninguna expectación y rápidamente me di cuenta que se trataba de un libro extraordinario que contaba una aventura extraordinaria. El libro mezcla una estructura novelesca con un estilo de aprendizaje, y me encantó. Creo que la idea de contar conceptos físicos y espaciales abstractos y difíciles de entender usando una voz narrativa que guía al lector es perfecto. Recomendando este libro a todos los amantes de la astronomía y la física que quieran aprender de una forma mucho más dinámica y divertida.
