

# CYCLOPAEDIA 27 – HARD SCIENCE FICTION

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## OVERVIEW

Hard Science Fiction is a subgenre of science fiction with an emphasis on scientific and technical accuracy. The term hard science fiction was first used in print in 1957 by P. Schuyler Miller in a review of John W. Campbell's *Islands of Space* in *Astounding Science Fiction* to help differentiate the genre from earlier genres like space opera. Even though the term was coined in the 50s, the early stories of Jules Verne, such as *Twenty Thousand Leagues Under the Sea* published in 1870, with its scientific rigor, are considered part of the genre.

Ben Bova states "The rule of thumb for a writer of 'hard' science fiction is that the writer is free to use anything his or her imagination can invent and depict — so long as no one can show that it contradicts the tenets of known science."

With hard science fiction's emphasis on scientific consistency and an attitude of respect for known science, boundaries are set up that guide creators who wish to stay true to the genre. But these boundaries are flexible enough for hard science fiction authors to be prophetic in their writings. The genre truly follows its speculative fiction origins and encourages creators to extrapolate from known scientific facts and theories to possibilities that may seem unbelievable when written but, in the future, become prophetically true.

Hard science fiction delves into how the universe impacts humanity and humanity impacts the universe while following the tenets of science in fact and philosophy.

## ELEMENTS OF HARD SCIENCE FICTION

Science fiction has so many sub-genres. How do you define Hard Science Fiction and delineate it from others such as Space Opera?

- Inside realm of scientific possibility
- Not outside known physical laws
- Emphasis on accuracy
- Advancements in technology
- Stories are accurate, logical, consistent, and credible

Following are sources of information pertaining to Hard Science Fiction to assist prospective game masters, game designers, writers, and storytellers in knowing where to start their research.

## ARTICLES

### "The Closely Reasoned Technological Story": The Critical History of Hard Science Fiction

By Westfahl, Gary

Source: Science Fiction Studies, v20 n2 (19930701): 157-175

### The Literary Experience of Hard Science Fiction

By Pierce, John J

Source: Science Fiction Studies, v20 n2 (19930701): 176-183

# BOOKS

***2001: A Space Odyssey***

By Clarke, Arthur C.

***Accelerando***

By Stross, Charles

***Altered Carbon***

By Morgan, Richard

***The Andromeda Strain***

By Crichton, Michael

***Beggars in Spain***

By Keresz, Nancy

***Blindsight***

By Watters, Peter

***Collapsing Empire***

By Scalzi, John

***The Color of Distance***

By Thomson, Amy

***Consider Phelbas***

By Banks, Ian M.

***Contact***

By Sagan, Carl

***Cyteen***

By Cherryh, C.J.

***The Diamond Age***

By Stephenson, Neal

***Diaspora***

By Egan, Greg

***Do Androids Dream of Electric Sheep?***

By Dick, Philip K.

***Dragon's Egg***

By Forward, Robert

***Ender's Game/Ender's Shadow***

Card, Orson Scott

***Evolution***

By Baxter, Stephen

***The Forever War***

By Haldeman, Joe

***Foundation***

By Asimov, Isaac

***The Fountains of Paradise***

By Clarke, Arthur, C.

***Incandescence***

By Egan, Greg

***I, Robot***

By Asimov, Isaac

***Jurassic Park***

By Michael Crichton

***The Leviathan Wakes***

By Corey, James S. A.

***Lilith's Brood***

By Butler, Octavia E.

***Makers***

By Doctorow, Cory

***The Martian***

By Weir, Andy

***Mission of Gravity***

By Clement, Hal

***The Moon is a Harsh Mistress***

By Heinlein, Robert A.

***On Basilisk Station***

By Weber, David

**Polaris**

By McDevitt, Jack

**The Quantum Thief**

By Rajaniemi, Hannu

**Rainbows End**

By Vinge, Vernor

**Red Mars**

By Robinson, Kim Stanley

**Rendezvous with Rama**

By Clarke, Arthur C.

**Revelation Space**

By Reynolds, Alastair

**Ringworld**

By Niven, Larry

**The Rolling Stones**

By Heinlein, Robert

**Sevенеves**

By Stephenson, Neal

**The Shockwave Rider**

By Bunner, John

**Starfish**

By Watts, Peter

**Stories of your Life**

By Chiang, Ted

**Synners**

By Cadigan, Pat

**Tau Zero**

By Anderson, Poul

**The Three-Body Problem**

By Cixin, Liu

**The Time Machine**

By Wells, H.G.

**Timescape**

By Benford, Gregory

**Twenty Thousand Leagues Under Tthe Sea**

By Verne, Jules

**Use of Weapons**

By Banks, Iain M.

**Vorkosigan Saga**

By Bujold, Lois McMaster

**World War Z**

By Brooks, Max

## GAMES

*2300 AD* - RPG

*BattleFleet Marts* - Tabletop Game

*Colony* - Tabletop Game

*Diaspora* - RPG

*Eclipse Phase* - RPG

*EVE Online* - Video Game

*The Expanse Board Game* - Tabletop Game

*First Martians: Adventures on the Red Planet* - Tabletop Game

*I-War* - Video Game

*Kerbal Space Program* - Video Game

*Pandemic* - Tabletop Game

*Stars Without Number* - RPG

*Terraforming Mars* - Tabletop Game

*Traveller* - RPG

## CINEMA

*2001: A Space Odyssey*

*2010: The Year We Make Contact*

*The Andromeda Strain*

*Arrival*

*Automata*

*Black Mirror* - TV  
*Blade Runner*  
*Blade Runner 2049*  
*Caprica* - TV  
*Children of Men*  
*Dark Star*  
*Deep Impact*  
*District 9*  
*Ender's Game*  
*Europa Report*  
*Ex Machina*  
*The Expanse* - TV  
*Falling Skies* - TV  
*Frau im Mond*  
*Gattaca*  
*Gravity*  
*Her*  
*Interstellar*  
*Jurassic Park*  
*Legends of the Galactic Heroes* - Anime  
*Logan's Run*  
*The Martian*  
*The Man from Earth*  
*Marooned*  
*Max Headroom* - TV  
*Mobile Suit Gundam* - Anime  
*Moon*  
*Moonlight Mile* - Anime  
*Planetes* - Anime  
*Primer*  
*ReGenesis* - TV  
*Robot & Frank*  
*seaQuest DSV* - TV  
*Silent Running*  
*Solaris*  
*Soylent Green*  
*Space Brothers* - Anime  
*Sphere*  
*THX 1138*  
*World War Z*

## LOCATIONS

Gunn Center for the Study of Science Fiction  
<http://www.sfcenter.ku.edu/>

Jet Propulsion Laboratory  
<https://www.jpl.nasa.gov/>

Johnson Space Center  
<https://www.nasa.gov/centers/johnson/home/index.html>

Kennedy Space Center  
<https://www.kennedyspacecenter.com/>

National Air and Space Museum  
<https://airandspace.si.edu/>

Space Camp  
<https://www.spacecamp.com/>

Space Center Houston  
<http://spacecenter.org/>

Yuri Gagarin Cosmonaut Training Center  
<http://www.gctc.su/>

## PEOPLE

Isaac Asimov  
Greg Bear  
Ben Bova  
C.J. Cherryh  
Arthur C. Clarke  
Michael Crichton  
Philip K. Dick  
Cory Doctorow  
Robert A. Heinlein  
Larry Niven  
Alaastair Reynolds  
Carl Sagan  
Peter Watts