ENTRY MATH MOVIES

Enigma

[Enigma] is an espionage thriller set during WW II. Most of the story is fictional. The main character Tom Jericho who serves with the British "Government Communication Headquarters" at Bletchley Park and played a significant role in breaking the German "Enigma" codes using a machine called "Collossus" to decipher the Enigma codes. The story is inspired by the lif of the mathematician Alan Turing who indeed contributed to the deciphering of Enigma during WW II.

A beautiful mind

The movie [A beautiful mind] describes the life of the Mathematician John Nash. Nash is introduced while entering Princeton as a young graduate student. The movie shows how Nash was struggling writing his PhD with the title "Non-cooperative games", a work which later would give him the Nobel prize. Nash is described as an impossible college teacher. In a calculus class, he introduces the following problem:

> Find a subset X of three dimensional space which has the property that if V is the set of vector fields F on the complement of X, which satisfy $\text{curl}(F) = 0$ and W is the set of vector fields F which are conservative $F = \text{grad}(f)$. Then, the space V/W should be 8 dimensional.

Good will hunting

The movie [Good will hunting] shows a math prodigy Will Hunting who grew up in a succession of orphanages in South Boston. Working as a janitor at MIT, he has taught himself mathematics. He would anonymously solve complex math problems which were left overnight on blackboards. From an AMS review: "The mathematics referred to later on ranges from basic linear algebra, through simple graph theory, to Parseval's theorem, Fourier analysis, and on to what seem to be some deeper graph theoretical results. Mathematics is referred to constantly, but in no scene is it presented coherently."

Cube

[Cube] Six strangers wake up in a maze of cubes equiped with movie traps and have to find their way out. Each room is equipped with a triple of numbers and colored. If all numbers are simultaneously not prime, then the room is trapped and entering it would kill the person entering it.

Hypercube

[Hypercube] In this horror movie, eight strangers wake up in a bizare cube-shaped room not knowing how they got there or how to escape. They soon learn that their "hypercube" operates in the fourth dimension and shifts into an endless maze of danger and in the end everyone dies. The movie is the sequel to the 1999 cult hit cube. Cube 2 was directed by Andrzej Sekula.

Sneakers

[Sneakers] An espionage thriller with Robert Redford. A hunt for a futuristic device which allows to decrypt secret messages. The device was built by a "genious Mathematician" who appears in the movie giving a pompeous lecture on factorization algorithms. The movie which appeared in 1992 is not totally unrealistic from the mathematical point of view. Shortly after the movie was released, in the year 1993, mathematicians have shown that in principle, a quantum computer could break the factorization difficulty which is the fundament for many modern encryption algorithms. An other interpretation for the device would be that a new algorithm for factoring large integers would be found secretly and be hardwired into a chip.

Pi

[Pi] In the movie Pi, the pursuit of the infinite takes on a deeper meaning. Max Cohen is a number theorist living in New York obsessed with a potentially unsolvable problem. Yet, what the story and the age-old problem uncovers is the deeper link between the mysteries of life and other topics of consciousness as seemingly disparate as the stock market, the Kaballah, technology, the DNA and the stars in the sky.

> "11:15 Restate my assumptions:
>
> - Mathematics is the language of nature.
>
> - Everything around us can be represented and understood through numbers.
>
> - If you graph these numbers, patterns emerge. Therefore: There are patterns everywhere in nature."
>
> Max Cohen in Pi

Old School

[Old School] In the college comedy "old school", three men, disenchanted with their life try to recapture their college life and wild youth by opening a frat house. In the movie, some aereal shots of Harvard appear evenso the movie seems have no scenes at all taken in Cambridge. At one point, the fraternaty members have to take a test in which they are asked about Hariotts method to solve cubics.

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