

# Entanglement

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*Look up entanglement in Wiktionary, the free dictionary. Entanglement may refer to: Quantum entanglement Orientation entanglement Entanglement (graph measure)*

Entanglement may refer to:

Quantum entanglement

Orientation entanglement

Entanglement (graph measure)

Entanglement of polymer chains, see Reptation

Wire entanglement

in fishery: method by which fish are caught in fishing nets

unintended entanglement of marine fish and mammals in ghost nets or similar: Plastic pollution#Entanglement

Quantum entanglement

*Quantum entanglement is the phenomenon where the quantum state of each particle in a group cannot be described independently of the state of the others*

Quantum entanglement is the phenomenon where the quantum state of each particle in a group cannot be described independently of the state of the others, even when the particles are separated by a large distance. The topic of quantum entanglement is at the heart of the disparity between classical physics and quantum physics: entanglement is a primary feature of quantum mechanics not present in classical mechanics.

Measurements of physical properties such as position, momentum, spin, and polarization performed on entangled particles can, in some cases, be found to be perfectly correlated. For example, if a pair of entangled particles is generated such that their total spin is known to be zero, and one particle is found to have clockwise spin on a first axis, then the spin of the other particle...

Flavors of Entanglement

*Flavors of Entanglement is the seventh studio album, fifth international release and last Maverick Records release by Canadian singer-songwriter Alanis*

Flavors of Entanglement is the seventh studio album, fifth international release and last Maverick Records release by Canadian singer-songwriter Alanis Morissette. The album, which was originally set for an April release, came out on May 30, 2008, in Germany, Benelux, and Ireland, internationally on June 2, and in the United States on June 10. It was produced by Guy Sigsworth. Flavors won Pop Album of the Year prize at the 2009 Juno Awards. The album gets its name from a lyric in the track "Moratorium".

Flavors of Entanglement received generally positive reviews from music critics, praising the new musical style of Morissette's album; however, critics felt the album's lyrics are not as original as Morissette's earlier albums. Charting success of the album was also moderate worldwide. The...

## Entanglement distillation

*Entanglement distillation (also called entanglement purification) is the transformation of  $N$  copies of an arbitrary entangled state  $\rho$*

Entanglement distillation (also called entanglement purification) is the transformation of  $N$  copies of an arbitrary entangled state

?

$\rho$

into some number of approximately pure Bell pairs, using only local operations and classical communication. Entanglement distillation can overcome the degenerative influence of noisy quantum channels by transforming previously shared, less-entangled pairs into a smaller number of maximally-entangled pairs.

## Entanglement-assisted stabilizer formalism

*communication, the entanglement-assisted stabilizer formalism is a method for protecting quantum information with the help of entanglement shared between*

In the theory of quantum communication, the entanglement-assisted stabilizer formalism is a method for protecting quantum information with the help of entanglement shared between a sender and receiver before they transmit quantum data over a quantum communication channel. It extends the standard stabilizer formalism

by including shared entanglement (Brun et al. 2006).

The advantage of entanglement-assisted stabilizer codes is that the sender can exploit the error-correcting properties of an arbitrary set of Pauli operators.

The sender's Pauli operators do not necessarily have to form an

Abelian subgroup of the Pauli group

?

$n$

$\Pi^n$

over

$n \dots$

## Monogamy of entanglement

*In quantum physics, monogamy is the property of quantum entanglement that restrict entanglement from being freely shared between arbitrarily many parties*

In quantum physics, monogamy is the property of quantum entanglement that restrict entanglement from being freely shared between arbitrarily many parties.

In order for two qubits A and B to be maximally entangled, they must not be entangled with any third qubit C whatsoever. Even if A and B are not maximally entangled, the degree of entanglement between them

constrains the degree to which either can be entangled with C. In full generality, for

n

?

3

$\{\displaystyle n\geq 3\}$

qubits

A

1

,

...

,

A

n

$\{\displaystyle A_{\{1\}},\ldots,A_{\{n\}}\}$

, monogamy is characterized...

Multipartite entanglement

*states is richer than in the bipartite case. Indeed, in multipartite entanglement apart from fully separable states and fully entangled states, there also*

In the case of systems composed of

m

>

2

$\{\displaystyle m>2\}$

subsystems, the classification of quantum-entangled states is richer than in the bipartite case. Indeed, in multipartite entanglement apart from fully separable states and fully entangled states, there also exists the notion of partially separable states.

Entanglement-assisted classical capacity

*In the theory of quantum communication, the entanglement-assisted classical capacity of a quantum channel is the highest rate at which classical information*

In the theory of quantum communication, the entanglement-assisted classical capacity of a quantum channel is the highest rate at which classical information can be transmitted from a sender to receiver when they share

an unlimited amount of noiseless entanglement. It is given by the quantum mutual information of the channel, which is the input-output quantum mutual information maximized over all pure bipartite quantum states with one system transmitted through the channel. This formula is the natural generalization of Shannon's noisy channel coding theorem, in the sense that this formula is equal to the capacity, and there is no need to regularize it. An additional feature that it shares with Shannon's formula is that a noiseless classical or quantum feedback channel cannot increase the entanglement...

## Entanglement (film)

*Entanglement is a 2017 Canadian romantic comedy-drama film directed by Jason James and written by Jason Filiatrault. It stars Thomas Middleditch, Jess*

Entanglement is a 2017 Canadian romantic comedy-drama film directed by Jason James and written by Jason Filiatrault. It stars Thomas Middleditch, Jess Weixler, Diana Bang, and Randal Edwards, and follows Ben (Middleditch) who forms a romance with Hanna (Weixler) after discovering through various means that they could have almost ended up siblings. This is the first feature film produced through Dark Star Pictures and premiered at the Seattle International Film Festival on March 19, 2017, before being theatrically released on February 2, 2018.

## Entropy of entanglement

*The entropy of entanglement (or entanglement entropy) is a measure of the degree of quantum entanglement between two subsystems constituting a two-part*

The entropy of entanglement (or entanglement entropy) is a measure of the degree of quantum entanglement between two subsystems constituting a two-part composite quantum system. Given a pure bipartite quantum state of the composite system, it is possible to obtain a reduced density matrix describing knowledge of the state of a subsystem. The entropy of entanglement is the Von Neumann entropy of the reduced density matrix for any of the subsystems. If it is non-zero, it indicates the two subsystems are entangled.

Mathematically, if a state describing two subsystems A and B

|

?

A

B

?

=

|

?

A...

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