Federation Database

Technological Theories

(Theories and Established Principles of Federation technology and scientific phenomena)

Archaeological Theories and Practices

Cryostore:
Cold storage method for fragile items (TOS: 53, 2531).

Artificial Gravity Theory

Artificial gravity was developed by the Vulcan Science Academy. The first Earth-built prototypes were tested in Moscow (TOS: 84, 31).

Artificial Gravity keeps individuals in a simulated gravity field within a ship. Without it, sudden changes in speed can people personnel into bulkheads, sometimes lethally (STA, 312).

Without Gravity stabilizers, a ship in warp must remain at warp, as any sudden deceleration will cause the ship to spin like a top (V: 9, 8).

Gravity Step:
Section of a ship where different gravity fields interconnect; the effect is not unlike walking up or down a step (TOS: TFA, 164).

Even with total power loss, the superconducting stators in the graviton generators will run for six hours (TNG: 48, 62).

The superconductors in a gravity generator spin pressurized gas to create the gravity field (TOS: BD,

Artificial Singularities

Bell discontinuities:
A characteristic of singularities; can be used to detect Romulan power sources (TNG: TR, 297).

Cloaking device

A cloaking field can generate a tachyon surge when hit by the subspace backwash of a vessel leaving warp (TNG: TR, 249).

In Klingon vessels, the transition from normal to cloaked space can result in madness (TOS: 17, 130).

Zynterian Camouflage Field (TNG: 55, 14)
Capable of altering the biological signature and appearance of the wearer. Usually is fatal to most other races, but can be used by Xenexians with no ill effects (TNG: 55, 15)

A cloaking device that can operate while allowing a vessel to fire its weapons cannot mask the discharge of plasma from the impulse engines during the exchange (ST: VI, 281).

Flint Device:
A cloaking device designed to create false sensor readings and allow a vessel to blend into its surroundings, changing its physical reading to do so. The Flint device, designed by Flint, could be defeated by coating the cloaked vessel with detectable fluorescent particles, rendering it visible to ship sensors (TOS: 46).

Romulan cloaking devices of the late 2260s would allow a vessel to transport individuals without having to decloak (TOS:27, 241).

Transponders can be used to detect high powered cloaking devices as they will receive large feedback signals from the cloaking field (TOS:40, 181).

Cloning

Cloned DNA can be identified through replicative fading (TNG: TR, 163).

Colonization

Hydrohaul:
Process in which frozen salt water and sea life kept in stasis is transported to a colony world to help establish hatcheries (TOS: BD, 89).

Combat Tactics

Silent Running:
Flying a starship with all non-essential system unpowered, including navigational aids and deflector shields, to render the vessel undetectable by enemy vessels (TOS: 67, 258)

Communications

Class-2 query (TOS: 42, 145).

Class-8 random Scan (TOS: 42, 145).

A false visual communication can be computer generated but usually use low quality audio and video so as to fool detection (TOS: P, 322).

A warp field can be distorted to alter subspace in a roughly cubic area (app. 1000 light years) and create stellar black noise that could effectively block communication (TOS: 18, 187).

Federation Standard Transmission Code:
It takes a minimum of 64 bits of information to correctly identify a single letter in Federation standard. This includes:

7 Terran pictographs and languages
5 Vulcan Alphabets
6 Branches of Andorian Letters
Telarite Trading Symbology (TOS: 70, 145)

Panic Channel:
Transmitting through the telemetry signal, which has the lowest signal grade capacity. Often used as a last resort (TOS: BD, 7)

Hyperchannel:
Faster than light communications network (TOS: P, 72)

Small communication units can be set to deflect subspace radio signals, ensuring a blackout of communications around the area TOS:27, 197).

Klingon communicators work in a standby mode at all time for purposes fo creating transporter locks (TOS: 48, 211).

A Universal Translator can be implanted at the brachial nerve of the forearm and can transmit translated language directly to the brain (TOS: 35, 58).

A Universal Translator can be reconfigured into a crude form of energy weapon (TOS: 35, 147).

With booster relays, the Federation is less than 20 subspace-days across by the 2370s (ST: P, 155).

Communicators

Connecting two communicators together can allow a short, high burst several times more powerful than a single communicator is capable of (STL: 9, 33).

Computers

Asimov Compensators:
Computer subroutines based on Isaac Asimov's Laws of Robotics that control set guidelines of behavior for Federation starship computers (TOS: 80, 262).

Cultural Theories

Dakhrian Migrations:
Evidence supports that Vulcans, Romulans, Kshatriyans, and Klingons were all part of one race at one time in the distant past due to common genetic structures (TOS: 15, 52).

Kahn Criteria for advanced civilization:

Extractive industries
Manufacturing industries
Services Industries
Activities done for their own sake
(TOS: 6, 78).

Proctor's Theory of Civilizations:
A complex culture requires an advanced communications network. (TOS: 12, 86)

Psychohistory:
Study of psychology and sociology that attempts to predict future events based on past events. Psychohistory identifies key decision points and the individuals that will make those decisions (ST: P, 19)

Tokano Coefficient of the Outsider
One that straddles two cultures has the most impact on both (TOS: 22, 8)

Dilithium Theory

Dilithium is created in the supernova of a star (ST: P, 231).

Dilithium is a transuranic element (ST: P, 251).

Energy Weapons Theory

Being caught in the blast nimbus of a disruptor can cause lethal tissue damage (TOS: 23, 222).

Minor injuries from disruptors, such as grazes and flashcuts, will heal in 8-100 hours, untended (TOS: 23, 228).

One can determine the origin of design of a ship weapon system by analyzing the molecular decay pattern of debris left in an attack (V: DOH3, 144)

The maximum range for a k'Tinga class vessel's disrupter batteries is 220,000 kilometers (TOS: 48, 132).

Phaser range and intensity can be augmented using dilithium crystals, an expensive modification (TOS: 50, 212).

Photon topedoes and phasers can be used to alleviate pressures on a planetary crust to stem the effects of an earthquake or to shift the epicenter of the quake (STL5: AE, 285).

Genesis Theory

The Genesis wave breaks down matter into sub-elementary particle waves, allow a programmed matrix the reshape the matter into whatever shape the users choose. The Genesis device's output is composed of unstable protomatter, which eventually breaks down the material into high-energy plasma. (TOS: 17).

Great Barrier Theories

The Barriers were seen to be attenuating in power around 2370 (TNG: 47, 10)

The Barriers have been in place for billions of years (TNG: 47, 12)

Both the Great Barrier at the heart of the galaxy and at the edge of the galaxy are composed of the same energies (TNG: 47, 10)

Genetic Engineering

DNA altered to match another's' will show telltale signs of amino acid padding at conjoined sequences (TNG: TR, 163).

Impulse Engines

Impulse power can be dumped from the Impulse engines to create a plasma stream that can be used to mask shuttlecraft launched from a starship (V: 9, 30).

Reactants can be valved off in order to stabilize the reactors (TOS: 67, 166).

Impulse engines are powered by high-energy fusion created by a pulsed laser array around a fuel tablet, creating an Internally Metered Pulse. The produced energy is then crushed in on itself using an artificial gravity field. The energy waves produced are used to propel the ship (TOS: FF, 141-3)

Life

Stenchak's principle:
Vulcan philosopher that states any complex phenomena that happens only once indicates a high probability of sentient life (DS9: 16, 97).

Electrostatis life forms will appear on an ion scan (TOS: 53, 77).

Proton-Acceleration fields can be used to disperse life forms composed of electronic Kyrillian fields (TOS: 53, 114).

Medical Practices

Amputated limbs can be recloned and attached (ST: VI, 159).

Mental Studies

Allergic Reaction:
Some minds are resistant to mind melds and will reject imparted information given in a meld (TOS: 17, 152).

Esper-blind:
Incapable of broadcasting thoughts to telepaths (TLY, 133).

Mind-Sifter:
Sends modulated baryon waves through the mind of the victim, allowing the synaptic pathways to be mapped and read. Can cause seizures, brain damage, and death. Similar to the mnemonic teaching devices of Sigma Draconis VI (TOS: 84, 149).

Psychic Backlash:
Caused by persons shutting down their own mind to resist psychic probing (TNG, 205).

Most telepathic species can be determined by biochemical markers within the brain (TOS: 34, 65).

Nanotechnology

Spiderweb Slugs:
Bullets that inject growing fibers comprised of nanotechs into the body. The web travels through the nervous system, destroying all nerve fibers. They travel up the spinal cord to the brain. The Neurophillic metallo-organic molecules have an affinity for the optic nerve, where they destroy the t-retina and cover the eye with a milky gray film (TOS: 2, 97).

Navigation

Standard Zero:
An imaginary line that runs through the galactic ecliptic used for navigational reference (TOS: 67, 145).

Orbital Skydiving

Uses a plasma cushion to deflect radiation and a forcefield to dissipate heat on reentry The forcefield acts as a ballistic cushion to slow descent until the monomer parachute deploys   Suits develop a massive ionic charge that can attract lightning; the charge can be dissipated by lowering shields and dumping charge through suit generators. Suits are made of semi-rigid plates that freeze into position on shield failure to protect the occupant from mach and g forces. (ST: CP, 19, 28).

Planetary Classifications

T'Pel's New Catalog
Old Vulcan Star Chart (ST: CP, 71)

T'Lin Catalog:
Planetary categorization system (TOS: 42, 1).

- Class J: Gas Giants (ST: CP, 36)
- Class K: Artificial Life support systems necessary for habitation (TOS: 77, 8)
- Class L: Marginally habitable without artificial life support (TOS: 77, 7).
- Class M: Earth Like Habitat

Preservers

Levorotatory proteins forms exist on virtually on worlds not 'seeded' by the Preservers (TOS: 35, 112).

Critics of the Preserver theory argue that the preservation efforts documented are similar to the colonization and spread of many space going civilizations. The Preserver myth takes the efforts and accomplishments of dozen of unrelated extinct cultures and tries to attribute them all to one all-encompassing civilization (ST: P, 112).

Proponents of the Preserver theory poin to the Preserver obelisks as proof that a single civilization is responsible for the seeding of the glaxy. Critics state that other races might have duplicated the Obelisk construction, and that they serve as a universal cultural talisman for the Preservation effort (ST: P, 113).

The Preservers have constructed duplicates of important worlds of the glaxy, presumably for their preservation purposes. By the 2370s, Starfleet had discovered three duplicate Earths, four duplicates of Qo'Nos, two of Vulcan, and one of Andor (ST: P, 169).

Psychohistorians believe that the Preservers are a guiding force in the development of the Federation, and have directly influenced events as diverse as First Contact between humans and Vulcans and the assignment of James T. Kirk to the Enterprise (ST: P, 207).

Nerve Regeneration

Daniel Corrigan and Sorel of Vulcan's nerve regeneration technique uses stasis fields that take the place of the involuntary nervous system while rebuilding the nerve endings. If the stasis field is interrupted, the patient will die. Following the rebuilding of the nervous system, a Vulcan healer must then reconnect the patients' mind with their body (TOS: 20, 23).

Phasers

Phasers can be used in lieu of a deflector screen. In order to do so, the phasers are set to wide beam emission and its frequency phase shifted. This creates a depolarizing field with similar effects to an actual deflector screen (TOS: 62, 202).

Phasers tune themselves to the targets' nervous system.

A low level phaser and phaser at full power can be used in conjunction to short out the regulator of an induction mesh and thereby stun the wearer (TOS: 42, 168).

Low-level ship phasers set at wide dispersion and phase lock can be used to excite the ionosphere and create massive auroras (TOS: 6, 177).

Heat Wash:
Energy bleed off from a phaser that can cause collateral damage to nearby objects to the target (TOS: 67, 264).

A phaser set to stun fired at point blank range at the base of the neck will disrupt the nervous system and cause arrhythmia, causing death (ST: VI, 243).

Quantum Theory

Quantum signatures can be analyzed to determine if an object or person originated from an alternate universe (ST: P, 215).

Replicator Theory

Zeton Radiation causes Argon to destabilize over time, becoming a dangerous, poisonous gas (TTM, 23).

Two engineering tricorders can be linked together with a type-2 inverter an increased power supply to simulate a replicator control chip (STA, 24).

A large enough replicator can be used to replicate a starship, save for the key computer and control systems (ST: P, 63).

Sensor Theory

It is possible to burn out an opponent's sensor by luring them into scanning at maximum power and then hitting them with everything one has available on as many wavelengths as possible. (TOS: 67, 261)

There is a very small zone of subspace sensor disruption caused by the wake of a vessel traveling in warp. A pursuing vessel can hide in this wake without being detected by a vessel operating a Tantalus Mask (ST: P, 57).

Shield Theory

According to Admiral Anton Wilson's study "Shield Geometry as a Function of Differential Manifold Dynamics," the gamma of s and t in the standard shield solution of a soliton-impulse wave function must not remain continuous, but can be made to be discontinuous. Doing so at the point of least energy expenditure would allow the shield to be bent; if applied elsewhere, the resultant change in shield shape could tear a starship apart. The bent shield configuration can be used to deflect mind-altering energy weapons, such as the Fury fear Beams (V: 9, 183).

Shields scramble energy emissions, which is how they disperse both phased energy beams and transporters (TOS: 62, 82).

If one can match the shield pulse rate with a phaser whose output is slightly out of sync with the modulation, it is possible to create a feedback loop that would disable the shield long enough for a transporter beam-through to be possible without losing the confinement beam. (TOS: 81, 121).

Low-level atmospheric shields can be breached via transporter through the following method:

1. A large solid mass (ex. Cargo containers) are beamed to a site bisected by the force field
2. For a few seconds, the energy field of the materializing containers and the shield itself cancel each other out, creating a pocket in the shield through which a second transporter beam, beaming the object or person can successfully do so.
3. The first transport is reversed before the containers fully materialize, thereby leaving only a few trace atoms and the rippling effect in the shield to mark the event (STA, 135).

Phased field generators:
Professor Omen demonstrated a shield in which the field turned on and off thousands of times every nanosecond, thereby creating a more powerful field that does not burn out

the coils. However, the field also alters the crystalline structure of metals within the hull of the shielded vessel, causing it to disintegrate. (TOS: 64, 89).

Dropping a circuit plaser on a disassembled junction switch in the forward Jeffries tube drops the shield (TOS: 42, 165).

By expanding a shields range and then contracting the field, it is possible to use a forceshield as a crude tractor beam (ST: CP, 38).

Forcefields can be used as inertial dampeners, dumping virtual Casimir particles. The field responds to the surge in absorbed energy by expanding to a size that allows for heat dissipation without destroying the shielded object (ST: CP, 56).

Adding power to the subspace field distortion amplifiers and deflect higher concentrations of tachyons (TNG: 47, 99).

Deflector screens can be modified to allow a vessel to modify its radiation signatures to disguise its surface temperatures (TOS: 43, 160).

Socio-Political Theory

Sherman Syndrome:
A complex pattern of crop failures, political mismanagement, and faulty economic planning of colony planets (TOS: 42, 107).

Space-Time Continuum

Planck-Wheeler length:
If space is viewed in microscopic detail, it is revealed to be full of uncountable numbers of singularities, this is known by the Vulcans as numosma (TOS: 15, 119).

Spatial Phenomena

Gravity Hook:
Gravity well that can be used to increase a ship's speed (TOS: 67, 132)

Gravity Well:
A gravitic anomaly caused by the collision of two stellar masses, resulting in a whirlpool like effect that has tremendous gravity at the base of its funnel. Photon torpedoes can be used to disrupt the magnetic flow of gravity wells, allowing a vessel to go with the current and fly through the base without being crushed (TOS: 67, 230).

Ion Storm:

Ion Storms can affect the Guardian of Forever and allow it to show future events (TNG: 55, 40). An Ion storm can be artificially generated with a large enough matter-anti-matter reactor (TOS:40, 206).

Nebulosity:
Area of space where atoms are ore tightly compacted than in normal space; can damage the hulls of ships traveling at higher warp factors (TTM, 42).

Turtledove Anomaly Points:
Subspace distortions that attract alien beings known as Yaggorths. Given both the dangerous natures of the anomalies and the Yaggorths, TAPs are designated Standing Hazards and any planets within five parsecs are declared off-limits (TOS: 71: 5)

Stellar Theory

Irregular variable stars:
Irregular variable stars can be stabilized by the release of controlled energy bursts deep within the stellar core. Two photon torpedoes launched into opposite solar poles at warp two can equalize gravitational pressures within the star and dampen its flares. There is a possibility that such an action can trigger a supernova (TOS: 6, 105).

Time Travel Theory

Time Gates:
First proposed by Ralph Seron at Cambridge Massachusetts in 2069, and refined by the Andorian scientist Shres (ST:IV, 49).

A vessel can time travel by approaching a stellar mass at maximum warp 9.9 and using the mass as a slingshot. The Enterprise crew showed that a successful jump can be made at a different trajectory at speeds of only Warp 8.1, but is highly dangerous (ST:IV, 241).

Molecular Memory:
A theory that states that some concepts, and some individual's roles, in the universe are so firmly established that changes in the timeline might cause slight changes but not the fundamental nature or what it or what should be. The universe will attempt to revert the time line to its appropriate course, given time. Some Romulan time travel experiments show strong evidence of this idea (TOS: 24, 102).

Predestination Paradox:
A theory of time travel that states a person was meant to travel in time if their actions in time dictated the history that led to their particular reality (DS9: TT, 104).

Timeline Orphan:

Theory that if an object from an alternate timeline exists for an extended length of time in a new timeline, the erasure of the original timeline will not cause the immediate cessation of that existence of that object in the new timeline. This displacement and retention is due to the law of conservation of space-time energy (DS9: 16, 143).

Time travel usually leaves trypamine residue in the cerebral cortex (TOS: AGT, 30). It can also lead to increase in neurotransmitter activity in the hippocampus, indicating the accumulation of memory (TNG: AGT, 77).

An inverse tachyon pulse can determine if a subspace anomaly is a rupture between time and anti-time (TOS: AGT, 173).

A tomographic imaging scanner capable of multiphasic resolution can scan the interior of an anti-time subspace anomaly (TNG: AGT, 202).

Klingons developed a method of time travel using a white dwarf that interacts with the Tau Eridani cloud, using Tillman's Constant (TOS: 23, 101).

Tractor Beam

Anti-phase Wave Cancellation:
The tractor beam can be used to create counter-oscillations in a planets crust to dampen the effects of an earthquake. The key problem is that this could create a wave motion too strong for a ship's inertial compensators to match, and the ship could shake itself apart (TOS: 77, 241).

Hyper-anchor:
Theory that a vessel can attach itself to a fixed point in space-time continuum and hold another vessel in place via a tractor beam (TOS: 64, 111).

A sophisticated tractor beam that can move individual molecules of an object in different directions could be used a heat weapon. The Erisian Superwhale probe used such a tractor beam to boil the surface of the oceans of Earth (TOS: P, 74).

A tractor beam can be used to generate sound waves by moving air and water molecules against one another in the atmosphere of a planet. The Erisian Superwhale probe used a tractor beam in this method to communicate with planetary surfaces (TOS: P, 75).

Transporter

Beam Capture:
The lock-on beacons of a portable combat transporter pad are so strong that they can be used to attract carrier waves of transporter directly to them; this process is known as a beam capture (TOS: 42, 120).

Carrier-wave collapse:

Loss of the carrier wave means a loss of necessary information (TOS: 42,16).

Code 127:
A transporter beam is automatically reversed when the computer detects an accelerator field within the transport beam, a device that would automatically rupture warp containment once materialized (TOS: 42, 17).

Deflector Shields:
When an attempt is made to beam an object or person through a deflector shield, the signal is scattered and bounced back, normally back along the original transmittal path. The transported object rematerializes in disarray, torn apart by the scattering of the signal. The resultant backlash usually leads to a misaligned transporter, as well as erasing all transporter records and systems (TOS: 62, 82).

Constance Duerring's original law of transporter electrodynamics states that energy is generated whenever a transporter encounters a force shield. That energy is usually absorbed by the random rearrangement of the transported object's molecules. It is possible to construct a device that would circumnavigate this effect by diverting the energy to the surrounding subspace boson field, where it is emitted as low-level radiation that shorts out the shielded vessel systems for a brief period (TOS: 62, 261).

Low-level atmospheric shields can be breached via transporter through the following method:

1. A large solid mass (ex. Cargo containers) are beamed to a site bisected by the force field
2. For a few seconds, the energy field of the materializing containers and the shield itself cancel each other out, creating a pocket in the shield through which a second transporter beam, beaming the object or person meant to be beamed down can successfully, can do so.
3. The first transport is reversed before the containers fully materialize, thereby leaving only a few trace atoms and the rippling effect in the shield to mark the event (STA, 135).

Early transporters could break through shields of that time by accelerated the transport signals to near warp speeds. An accelerated signal could then be timed to punch through dead zones within the shield (TOS: 16, 207).

Benefactor technology indicates a link between warp and transporter theory and their similarities of translocation within space-time (TOS: 84, 267).

DNA:
Although DNA can be replicated, there is a slight quantum mass imbalance detectable in the replicated material (TNG: TR, 163).

Fusion Discharge:
The sparkle and light associated with the transport process is known as fusion discharge (TOS: 70, 236).

Intraship Beaming:
The difficulty in intership beaming results primarily to the effects of an active subspace field created by the warp core, which tends to distort the beam and affect materialization coordinates (TOS: 70, 231).

Individuals standing at the edge of a transporter beam run the risk of losing molecular cohesion in a long-range teleportation (DS9: 16, 187)

Transporters can cause static in unshielded electronic systems (TOS: 66, 96).

Calibration modules are used to test transporters prior to use for biological transport. These boxes are made of alignment alloy. The surface of the alloy radiates a rainbow like prism made by refractive patterns formed by its constituent atoms. If those atoms are molecularly misaligned by even half an atomic diameter, the surface will turn a dull black (TOS: 42, 116).

There are approximately 150 million gigabytes of information transmitted in each human transport. This information is kept in the buffer for usually no longer than five minutes before they begin to deteriorate. A TEREC unit can be used to repair signal degradations by matching with medical scans (TOS: 15, 30).

Pad-to-pad transports take 1/10th the energy of a single pad transport (TOS: 42, 120).
It is easier fro a transporter pad to receive a signal from another transporter pad than it for the other transporter pad to send the signal. This is important in circumstances where on vessel is suffering gravitational distortions that render its own transporter system unreliable. (TOS: 67, 189)

One can manipulate the chromatic appearance of a transporter's light signature to mimic the effect of being consumed by a disruptor blast (ST: CP, 281).

Biofilters are turned off in point-to-point transport in a planetary atmosphere (ST: CP, 307)

Barometric equalization is standard when beaming personnel from different altitudes or pressurized spacecraft (ST: CP, 307).

Increased tachyon emissions can interfere with the transporter process (TNG: 47, 129).
Earlier Federation transporters such as the ones on Baton Rouge ship classes took minutes instead of seconds (TOS: FF, 58).

Without a range finder or a communicator lock, it is impossible to be accurate in a transporter beam-up (TOS: 12, 107).

The Transmission Confirmed light indicates when a transport was successful (TOS: 14, 8).
Boosting the annular confinement beam can often overcome interference caused by radiation (V: DOH3, 80).
Holding an individual in stasis while redirecting a transporter beam causes a moment of weakness in even a healthy individual (TOS: 38, 117).

Viridium can be used to create patches that serve the same purpose as subcutaneous transponders (ST: VI, 229).

A shuttle bay can be reconfigured to act as a transporter by lining the bay with magnetic panels and rerouting power supply to the deck plating of the bay (TOS: 46, 197). Transporting people through a high intensity Klingon tractor beam is dangerous and possibly lethal (TOS: 46, 212).

Emergency Quarantine:
Procedure implemented when an alien presence is detected in a transport. The transporter room is sealed from the rest of the ship until the nature of the alien can be determined. The transporter room can be scanned for life-form readings at a submicron level. (TOS: 53, 29)

Static Backfire:
An electromagnetic surge in the transporter effect that causes flashes of light, caused by foreign matter that picks up a resonation. The matter can be detected with an ion scanner. (TOS: 53, 34).

Transporters stabilize kyrillian fields (TOS: 53, 191).

A transporter to transporter transfer can break through higher levels of interference than a single side transport. The individuals transported do not necessarily have to be beamed from the second transporter's pad, but their signals are augmented by the nearer transporter unit (TOS:40, 16).

Transponders can be used to boost a transporter signal through heavy ion interference (TOS:40, 17).

A warp-core explosion causes radiation that inhibits transport (TOS: 34, 28).

Certain types of sunspot activity can inhibit transporting in the same matter as energy shielding (TOS: 48, 71).

Klingon transporters use boosted carrier waves, similar to signal repeaters, to enable them to transport through instances which would inhibit Federation transporters. Such a method is dangerous, and Klingon officers often assign themselves personal tranport controllers to ensure their survival in the process (TOS: 48, 213).

Trans-Warp Theory

Borg transwarp conduits have been accessed in the past by directing encoded, high-energy tachyon pulses (TNG: TR, 140).

Warp Engines

Partial destabilization of a subspace field will result in a trail of subspace radiation from the affected vessel (TOS: 62, 90).

A leak in the warp core assembly can be modulated to direct a pulse into space. The pulse can be modified to deliver messages that will be seen by nearby vessels as a simple leak (TNG: C, 161).

Benefactor technology indicates a link between warp and transporter theory and their similarities of translocation within space-time (TOS: 84, 267).

Subspace harmonics can cause dilithium crystals to crack and shatter. Taygetians are capable of creating this harmonic (TOS: 19, 169).

A Warp field can be distorted to alter subspace in a roughly cubic area (app. 1000 light years) and create stellar black noise that could effectively block communication (TOS: 18, 187).

Dilithium Recrystallization can be accomplished using high-energy photons from a nuclear fission reaction (ST:IV, 99).

The Warp engine signature of a Romulan vessel of Klingon manufacture is 8% richer in emissions than that of a Klingon vessel (TOS: 67, 64)

Pedone's Law of Imaginary Energy Usage:
Theory that states that each time a vessel breaks the light barrier; the ratio of dilithium isotopes is altered by a factor of I (DS9: 16, 70).

When a fourth-dimensional arm of dilithium comes in contact with the artificial increased entropy of an accelerator field, the energy of the anti-matter/matter reaction is caught in a temporal loop that leads to an uncontrolled reaction and an immediate warp core breach. Accelerator fields should be kept at least several kilometers from a warp engine (TOS: 42, 17).

An uncontrolled warp reaction leads to a surge in flux that will blind anyone who sees the A planetary atmosphere can be disrupted by the impact of a vessel with a warp field chain reaction (TOS: 67, 219).

A warp field overtakes photons traveling in the same direction and speeds those photons to warp speeds. When the photons leave the warp field and return to normal space, they convert their energy into radiation, usually as gamma rays that appear in a concentrated burst along the warp field's heading. These superluminal wakes are detected by conventional astronomy, and most advanced vessels now disperse accelerated photons to prevent telltale gamma bursts (ST: CP, 78). Gamma-ray outbursts are used to discover emerging warp cultures.

A vessel traveling in warp leaves a subspace wake that will disturb vessels within normal space near its path (ST: CP, 156).

A warp engine must surpass at east 1000 millicochranes of power in order to generate a warp field (TNG: 47, 139).

It takes 0.35 seconds to transfer from Impulse speed to Warp Speed (TNG: 47, 234).

A warp core explosion causes antiproton flushback. Some types of warp dampening fields will cause antiproton flushback when negating the warp field of a vessel caught within the field A flushback travels at hyperwarp speeds and are detectable for light years in every direction (TOS: BD, 350). (TOS: BD, 7, 346).

Strain on warp images causes stress along the internal cleavage planes of dilithium crystals (STL8, 137).

Ion Patterns can be used to determine the design or origin of a ship's engine signature. Such patterns are discernible for days after a ship has left an area (V: DOH3, 144).
A warp core breach releases in the release of tremendous amounts of neutron radiation (ST: VI, 99).

Rostler technique:
A warm start of the engines requiring heavy shielding and using radiation to repair the magnetic bottles (TOS: 12, 71)

A warp engine needs a warm-up period of thirty minutes or the antimatter-matter containment will fail (TOS: 43, 45). For a hot restart, the time to repower the engines is six minutes (TOS: 50, 225).

Dilithium crystal powder can be subjected to heat and fused back into a usable crystal (STL4: TI, 36).

Professor Jenkins team was responsible for the breakthrough that allowed dilithium crystals to be used in a warp drive matrix (STL4: TT, 124).

Dilithium is the only known substance in which the molecules are arranged helically instead of linearly (STL4: TI, 37).

Weapons Theory

A planet-destroying bomb can be constructed using a small amount of shielded antimatter within a neutronium shell. The super-dense Neutronium shell would fall through the planet to the core, where the detonation of the antimatter would shatter the planet (TOS: 80, 209).

Arming photon torpedoes creates a detectable surge in neutron radiation (ST: VI, 99).

Wormhole Theory

One way to build artificial wormhole is by building a gigantic collection device to receive neutrinos and spin them into a tight circle. The energy received would be placed in a subspace tunnel that can only expand forwards and backwards, thereby creating a wormhole. Trill scientist Dr. Lenara Kahn created the first stable artificial wormhole, if only for a few moments, at DS9 in 2371.

It would be possible to tunnel through the Great Galactic Barrier using a quantum torpedo whose shields are attuned to the amplitude of the barrier. The torpedo will last long enough to create a magnaton pulse that can react to a subspace tensor matrix, causing the energy lattice of the barrier to fracture and allow a vessel to pass through (TNG: 47, 17).