Advanced Plasma Weapon Technologies

Advanced plasma technologies alter the state and behavior of plasma in order to perform specialist functions, adding secondary firing characteristics.

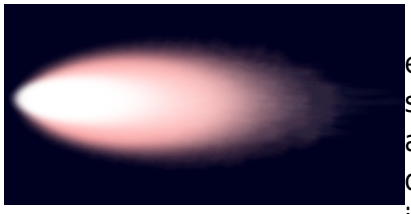
Doing so involves the use of specialist equipment, requiring specialist research and experimentation to discover new uses.

It should be noted that plasma follows a number of very basic and simple rules and can be thought of as a vaporous form of electrically charged mercury, moving along a set pattern similar to the apple-core shape made by iron filings of a magnet: following the field from one pole to the other seeking to equalize its energy state.

As such, plasma can be tricked into moving in very specific ways but only using highly specialized equipment rather than some repurposing of another system such as a shield or engine unless it was explicitly designed with this functionality in mind (removing the ability of players to technobabble their way out of a situation).

At this time, the Lorath have the greatest mastery of plasma technology, using it in their weapons, engines, reactors, FTL and even shield and sensor systems extensively.

Packet (P)



A conventional standardized plasma shot, a packet is a ball or extruded elliptical sphere of plasma launched from an electromagnetic firing array, similar to that of a rail gun. Versatile and modifiable if the launcher is altered, they offer a high rate of fire and low energy investment but lack deep penetration. Instead, their focus is closer to that of high explosive incendiary ammunition with destabilisation on the atomic level as well as ionized particle release which can in special cases irradiate the target. They tend to be a step above solid munitions and ammunition can be sourced from many atmospheres but they depend on a high output reactor and are a danger to unshielded personnel. It is sometimes described as a “**bolt**” if the round velocity is enough to stretch the sphere into a rod-like shape.

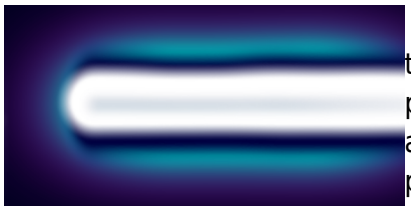
Arc



A dumb form of plasma, arc-plasma chases routes of ionized particles to their destination, having very little in the way of a ionized carrier as other shot types do: establishing a channel and flowing from the projection point to the target, then carrying a massive electrical charge with it causing secondary thermobaric effect. Interestingly, arc plasma cascades over large objects and envelops smaller objects which can be used to great effect against barriers and fields. To a layperson, this projection is best compared to being struck by

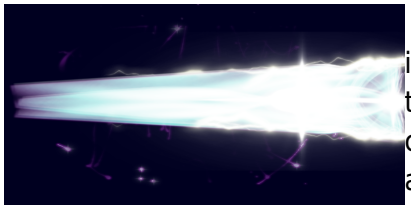
lightning [1].

Beam



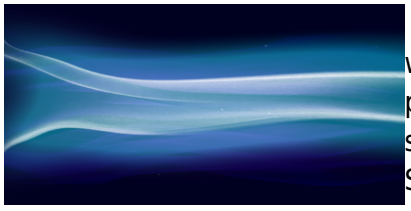
Still quite conventional but mainly used on armored vehicles (especially those used in space), a beam is closer to a tube and is compared to “being punched with an I-beam of heavy lightning” (hence the name) with inertia and mass causing impact and significant trauma similar to long rod penetrators and rail cannons. They almost always depend on some sort of subspace accelerator (the compressed packet rifle being a great example) with an emphasis on super-luminal combat. Arc phenomena around the shot is not unusual in high grade plasma beam weapons. It is noteworthy for its high velocity and long range, at the cost of taking longer to charge and having a lower rate of fire, as well as often having special cooling requirements.

Blade



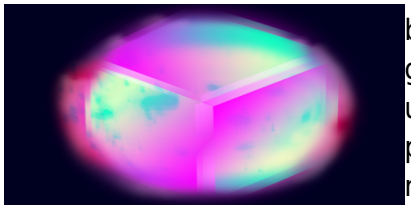
A short-range beam with intentionally focused arc phenomena, the blade is designed for close combat. Projected from a handle or surface on a unit, they use a high frequency projection (which seemingly vibrates) in order to create a substantially higher delivery of energy on contact at the cost of any ranged capabilities. Proper adjustment of the projector can create a conventional shearing cutting edge with a thickness of one picometer. Often, a blade will “leak” or “ooze”.

Wake



A secondary characteristic which can be added to a pellet or beam shot, wakes are used to continue accelerating the round after launch using arc phenomena, similar to the way a gyro-jet works. The wake can be stabilized into a thin beam, provided the host platform is reasonably stable. Signals altering the behavior of a shot can be sent through the trail. It can often be thought of as the trail behind a rocket or the control wire of a wire guided missile and usually depend on the parent unit having a wake of its own. Alternatively, a wake can be thought of if wrapped around a unit as a field on stand-by. They are often also invisible. (See apparition_wake_array)

Field



By using electrical properties of plasma, a wall or bubble can be created behaving like a catmull clark subdivision object: smooth and resembling globs or bubbles with pinched edges where projectors do their job underneath. Fields can serve as their own defence using the properties of plasma but excel in acting like large ionized prehensile antennae as a middle-stage, projecting other field types around itself with excellent coverage which would usually require an antennae bigger than the unit inside. While a field can form other beam types, they do so far less effectively than dedicated projectors and do so at the cost of their own cohesion. They are often invisible until struck.

Advanced Plasma Technologies

These technologies at this time are less conventional uses of plasma, used often either as an antennae or as a storage system for other particles.

Most of these technologies were only available to the Lorath at the time as their technical development path was skewed towards plasma technologies. This isn't to say they were exclusive however; anyone can develop it with the right technology.

Compressed Plasma Technology



An advanced form of plasma technology, compressed packets create layers which envelop a single point inside and are hollow. They work as self-stabilizing storage bottle, identical to that used to store antimatter in order to store exotic particles like muons or antimatter, removing the need to use missiles and bombs to deliver them: in a sense, similar to the way a party balloon can become a water bomb. It can be thought of as adding a tactical warhead to a missile and most beam types can be turned into compressed-types. Importantly, compressed packet rounds have a lower rate of fire than their less sophisticated counterparts (needing more time to produce) but trade off with a high damage output and sometimes a longer range. They're also capable of using wake and trail style shots. (See Compressed packet weaponry)

At this time, only the Lorath Matriarchy and the Lazarus consortium produce packet plasma weapons. They may be contacted for patents or assistance for other nations developing such munitions and are leaders in the field.

Common Firing Characteristics

- Muzzle Flash:
- Retort:
- **Projectile/Beam Appearance:**
- Effective Range
- Rate of Fire:
- Recoil:

Homing Plasma Technology

Not to be confused with guided plasma, homing plasma is a plasma round which is attracted to positive electrical potentials created by energetic defensive fields, high powered capacitors in energy weapons, engines and power-plants. They use careful frequency timing with the host platform and support units to avoid homing in on the launcher itself in combination with an “escape velocity” of sort, meaning the round tends to be very fast.

The high negative potential of the ion-dominant plasma can also deplete, cook or overload systems in enemy equipment and ionize permanent superconductors, destroying them making it particularly effective against enemies using energy weapons. They are also ideal for stripping energetic shields, even if they are not particularly effective against the armor beneath.

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It should be noted that energy potential inversion is not a viable defense against a plasma launcher, given that removing positive electric potentials results in supplying no power to a given piece of equipment or systems. Similarly, frequency shifts can only reduce attraction, not stop it it – with a better defense being to eiher release something more attractve or move near something more attractive.

As such, an HPL is only useful in select engagements and is a poor choice in environments where friendly fire or collateral are a major concern.

The homing plasma can be formed into a packet for advanced particle delivery, such as antimatter.

A weapon using this technology is known as a plasma launcher.

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Common firing characteristics

- Muzzle Flash: The high velocity of the shot generally means the flash is only seen after the round has already exited the barrel, seemingly delayed.
- Retort: Depending on the selected velocity, the weapon either makes a thunder-like “crunch” caused by the rapid compression of air left in its wake or at higher velocities a shock-wave which is non-audible but causes secondary effects such as collateral damage and hemorrhaging in softer targets.
- **Projectile/Beam Appearance:** The plasma shot itself is a brilliant cyan which as its energy potential drops fades into a cerise color about its boarders. While often overwhelmingly white, the color-effect becomes more extreme as the velocity becomes post-luminal – with the round becoming more cerise if the round is moving toward them and more cyan if the round is moving away.

- Effective Range Tracking in homing projections begins only after 8 meters.
- Rate of Fire: Dependent on the weapon in question using the technology.
- Recoil: Often a unit using energetic defenses will experience a reverse recoil of sorts, pulling the machine forward rather than pushing it backwards if the round is fired in the magnetic field of planetoids.

Guided Plasma Technology

Not to be confused with homing plasma, guided plasma technology can be thought of as being similar to a wire guided missile. This is achieved by rifling the round as a partial packet with an intentional flaw in its design and then, either increasing or decreasing the spin of the round by sending a very specific electrical current along the wake or trail the round has left behind. Given that the guided plasma round is constantly trying to pitch (defeated by its roll), by varying the speed it can be guided in a spiral-like pattern to the target, even making complete U-turns and other complex manoeuvres.

The control signal issued also serves to attract and magnetize the wake, turning what would otherwise be a sparse trail into a tight confined beam of plasma.

A weapon using this technology is known as a plasma caster.

At this time, only the Lorath Matriarchy and the Lazarus consortium produce packet plasma weapons. They may be contacted for patents or assistance for other nations developing such munitions and are leaders in the field.

Common firing characteristics

- Muzzle Flash: The muzzle flash, vented along the length of the barrel contorts forward and clings to the shot, akin to fast-moving strings of syrup clinging to a bowl and a spoon. The “rope” of muzzle-flash does not break or split.
- Retort: The sound of the round is more like a loud screaming wailing in an atmosphere caused by the toroid movement of spinning air over the round (akin to Nebelwerfer)
- **Projectile/Beam Appearance:** The head of the round is usually brilliant white. Spinning quickly, it leaves behind a cyan “shock-cone” wake about its head which tightens back up like the neck of an unfired sabot. When turning, a split 'gap' in the cone can be seen, resembling a Catherine-wheel.
- Effective Range The weapon is effective almost immediately after firing.
- Rate of Fire: Dependant on the weapon in question using the technology.
- Recoil: Dependant on round velocity of launcher (scaling exponentially)

Scatter Plasma

Not readily obvious until close to the target, scatter-plasma allows a bullet, beam or packet plasma shot to be splashed or scattered: either in all directions or in a specific cone of fire: Not all at once but in rapidfire sequence like a machinegun, with the aim being semi adjustable at the last minute.

It can be thought of as a fragmentation warhead on a missile, with similar shotgun effect and is achieved by explosively depolarizing a plasma shot using a wake.

If the shot in question is a guided shot, the turn direction becomes the splash direction, allowing for shots behind corners. Pellets and packets can only scatter once: A beam can scatter repeatedly in high speed sequence (sometimes described as 'bullet hell')

Common firing characteristics

- Muzzle Flash: A high arcing electrical discharge can often be seen leaping from the pellets as the break off and split, fragmenting and exploding from the round.
- Retort: A sharp “popping” sound, usually delayed.
- **Projectile/Beam Appearance:** An existing fired round will seemingly “splash” as if struck from behind into a variable diameter cone of fire similar to a shotgun. The shot is usually dimmer than the original.
- Effective Range Usually within 30 meters of the target.
- Rate of Fire: Once per parent shot
- Recoil: N/A

Shaped Plasma

The opposite of scatter plasma, shaped plasma uses a similar effect in reverse to increase the coherence of the shot at its tip. The principle is similar to that used in an explosively formed penetrator: creating a 'cloth' of plasma which shapes against the small indentation it makes at its tip at high velocity, causing further penetration which grows larger and larger - otherwise known as the monroe effect.

The effect is achieved by sending a signal through a shot wake and requires a high investment charge. The polarized nature of the shot means once it has entered a target, it will usually suck the rest of the trail down through the point of penetration, cooking whatever is inside instead of splashing over the object's surface. For this reason, shaped plasma is viewed as an unethical weapon but is ideal for room clearing.

Generally weapons emplying penetrative plasma are quite unwieldy and large, too much so for a power-armor without hampering its mobility.

Common firing characteristics

- Muzzle Flash: A round which has already been fired will flash brilliant white, becoming longer and more rod-like.
- Retort: A high pitched whine, akin to grinding metal at the edge of one's hearing.
- **Projectile/Beam Appearance:** The shot becomes brighter, more rod-like.
- Effective Range Point blank/before the parent shot is about to hit the target
- Rate of Fire: Once per parent shot
- Recoil: N/A

Adhesive Plasma

The shot is polarized at a lower amplitude than a guided shot, usually at a much much lower range (often close combat): the lack of conventional cohesion makes “adhesive” plasma look more like a flame-thrower, lacking any conventional cohesion or shot-type.

Importantly, adhesive plasma clings to its target, especially over barriers and shields where it will act as a sink for a positive electrical charge, draining electrical systems onboard the parent unit.

It should be thought of as a large low density plasma blade, exchanging its cutting ability and responsiveness (trailing slowly) with a wide cone of fire, very high collatoral damage and a great capacity to weaken or cripple electrical fields of enemy units such as shields or FTL.

Quite importantly, a charge can be issued through the plasma once on contact which if sufficiently large can temporarily disable or in some cases even cook and destroy field broadcast systems.

Common firing characteristics

- Muzzle Flash: The round appears to be the muzzle-flash itself, resembling flame.
- Retort: Similar to the growl of a high powered plasma torch
- **Projectile/Beam Appearance:** The shot resembles a white and cyan flame with cerise and red edges, licking out in strange smeared patterns.
- Effective Range Usually less than a meter.
- Rate of Fire: Constant
- Recoil: None

[1)]

Real lightning https://www.youtube.com/watch?v=qRuNxHqwazs

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