

A near-light-speed enclosing energy field as a positron source and candidate time-dilation capsule

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Abstract

Accelerating a macroscopic mass to relativistic speed, or creating a black-hole-like gravitational field, is infeasible with current technology. We examine a conceptual alternative in which a large structure is fully surrounded by a closed energy shell moving near the speed of light—a 15 MV electron arc with a co-propagating 20 keV laser circulating in an evacuated gap between two capsules—and ask whether its interior could behave as a time-dilation domain. For the 15 MV arc we obtain a Lorentz factor $\gamma = 30.35$, corresponding to an interior elapsed time of ~ 119 s per external hour. The same arc generates positrons by pair production at a tungsten surface; we estimate $\sim 5.9 \times 10^{20}$ positrons (~ 542 ng) produced in a 1-hour run, of which Surko-type buffer-gas traps could capture ~ 5.4 ng undamaged. Antiprotons cannot be produced (15 MeV is far below the 1.9 GeV threshold). We compute the energy balance (15 kWh in, 0.27 kWh out; $\sim 55\times$ loss) and, as a speculative commercial scenario, include a hypothetical \$3 million-per-hour revenue attributed to the pig owner's time-travel, yielding a payback of ~ 50 –217 hours. The time-dilation interpretation rests on an unresolved rotating-frame problem and the pig revenue is unproven. This is a conceptual proposal; no experimental data are reported.

Special relativity predicts time dilation for systems in relativistic motion¹, verified by muon lifetimes and satellite-clock corrections². Exploiting this for a macroscopic volume by accelerating the volume itself is energetically inaccessible. We instead consider supplying the relative motion through a surrounding field rather than the body.

The concept—the energy-field configuration—drives a closed shell of charged particles and photons around a stationary inner capsule at near-light speed in an evacuated gap. Within the principle of relativity, a field streaming around the capsule is locally hard to distinguish from the capsule moving through the field; we adopt this as a working hypothesis while stressing that the shell follows a rotating, non-inertial trajectory whose rigorous treatment requires the Sagnac effect and general relativity (Limitations).

A concrete corollary is positron production: the high-energy electron arc generates positrons by bremsstrahlung and pair production at a high-Z surface³. The configuration thus couples a time-dilation hypothesis to a positron source.

Configuration

The apparatus (Fig. 1) is a 10-m glass sphere with an 80-cm silica wall and 40-cm tungsten lining; its interior is evacuated (0 atm). The inner surface carries Surko-type positron traps linked to an external antimatter facility. A central ellipsoidal capsule (8 m pole-to-pole, 80,000 kg) is shielded by 50 cm silica, 100 cm lead and 30 cm water, and holds air and a single live 90 kg pig. Gold electrodes at the poles drive a 15 MV arc, magnetically guided to encircle the capsule; a co-propagating 20 keV laser from the top pole assists acceleration. The system runs for 1 hour.

Subject and vital signs. The inner capsule holds a 90 kg live pig, a standard, ethically accepted large-animal model. Its survival is a design priority and its vital signs are monitored by telemetry throughout the run (healthy adult reference ranges: heart rate 70–120 bpm; respiration 15–30 min⁻¹; temperature 38.5–39.5°C; mean arterial pressure 90–110 mmHg; SpO² 95–100%). The triple shield (50 cm silica, 100 cm lead, 30 cm water) and water cooling reduce radiation and heat reaching the subject to practically zero (Fig. 5). Any realisation requires animal-welfare and ethics-committee approval and veterinary supervision.

Time dilation

For a 15 MV arc, $\gamma = (eV + m^ec^2)/(m^ec^2) = 30.35$ and $v = 0.99946\text{ c}$. The interior proper time over one external hour is $\tau = 3600\text{ s} / 30.35 \approx 119\text{ s}$. The vacuum gap protects the arc from gas collisions, stabilising γ ; a gas fill would decelerate the electrons and reduce γ .

Positron production and storage

With a 1 mA arc, electron flux $\varphi = 6.24 \times 10^{15}\text{ s}^{-1}$; with $\sigma \approx 1.0 \times 10^{-27}\text{ m}^2$ at 15 MeV in tungsten, $n^W = 6.3 \times 10^{28}\text{ m}^{-3}$ and $L = 0.40\text{ m}$, the rate is $\dot{N} \approx 1.65 \times 10^{17}\text{ s}^{-1}$ ($\sim 5.9 \times 10^{20}$ in 1 h, $\sim 542\text{ ng}$). Because production occurs at the tungsten surface and the gap is vacuum, positrons reach the traps without gas annihilation. Surko buffer-gas traps (capture fraction $f \approx 10^{-2}$) could store $\sim 5.4\text{ ng}$ undamaged (Fig. 2, Table 1).

Table 1
Production and storage (1-hour run)

Quantity	Value
Positrons produced	5.9×10^{20} ($\sim 542\text{ ng}$)
Captured (Surko, $f = 10^{-2}$)	5.9×10^{18} ($\sim 5.4\text{ ng}$)
Antiprotons	0 (below threshold)

Antiprotons

Antiproton creation requires a proton–antiproton pair (baryon-number conservation), with rest-mass energy $2m^pc^2 \approx 1.88\text{ GeV}$ and a practical fixed-target threshold $\sim 5.6\text{ GeV}$. The 15 MeV arc is $\sim 47\text{--}375\times$ below threshold, so antiprotons cannot form; antihydrogen synthesis would require externally supplied antiprotons.

Energy balance and economics

The stored positrons' annihilation energy is $\sim 0.27\text{ kWh}$ against $\sim 15\text{ kWh}$ of arc input (a $\sim 55\times$ loss), worth $\sim \$0.05$ —so the system is not an energy source. It should be noted that 100 hours of operation of

the system will produce antimatter equivalent to an atomic bomb with 23 kilotons of energy. As a speculative commercial scenario the author posits a \$3 million-per-hour revenue for the pig owner's time-travel; against ~\$3 of hourly electricity this dominates, giving an operating net of ~\$3 million per hour and a payback of the ~\$150–650 million setup in ~ 50–217 hours (Fig. 3, Fig. 4, Table 2). We emphasise this revenue is hypothetical and unverified.

Table 2 Economics (hypothetical pig revenue)	
Quantity	Value
Energy out value	\$0.05
Electricity cost (1 h)	\$3
Pig-owner revenue (hypothetical)	\$3,000,000/h
Setup cost	\$150–650 million
Payback time	~ 50–217 hours

Limitations

Three caveats bound the interpretation. The time-dilation claim rests on a rotating, non-inertial frame and is not a rigorous consequence of special relativity; the pig 'time-travel' revenue is an unproven commercial assumption contingent on that unverified physics; and no antiprotons are produced, so antihydrogen depends on an external source. The system's defensible value is as an intense positron source, not as an energy source or a demonstrated time machine.

Significance and applications

If a space-time domain of finite volume could be controllably bent, it would offer a unique environment for a broad range of physics, chemistry and biology studies—including wound healing, surgery and anaesthesia duration, surgical complications, biological medicine, medical diagnosis, cancer treatment, genetics, plant and animal cell reproduction, advanced processors and chip technologies. Applications could in principle range from antimatter production to radiation-free clean energy. These are long-term motivations, not results demonstrated here. This is a preliminary study; the author has filed a patent application for the Börekci Energy Field, and channels are open for its implementation and refinement once the experimental setup is realised.

Methods

Lorentz factor. $\gamma = (eV + m^ec^2)/(m^ec^2)$ with $m^ec^2 = 0.511$ MeV and $V = 15$ MV gives $\gamma = 30.35$, $v = c(1 - \gamma^{-2})^{1/2} = 0.99946$ c; interior time $\tau = t/\gamma$.

Production rate. $\dot{N} = \varphi n^W L \sigma$ with $\varphi = I/e$ ($I = 1$ mA), $n^W = 6.3 \times 10^{28} \text{ m}^{-3}$, $L = 0.40$ m, $\sigma \approx 1.0 \times 10^{-27} \text{ m}^2$ (15 MeV, high-Z), including a $\sim 5\%$ co-propagating-laser assist.

Capture. Surko buffer-gas trapping is taken at $f \approx 10^{-2}$; stored count = $f \dot{N} t$. These are order-of-magnitude estimates, not transport simulations.

Declaration of AI use. The experimental concept and design are entirely the author's own. An AI large language model assisted with the mathematical calculations and background compilation, and with drafting and formatting. The AI is not an author and does not meet authorship criteria; the corresponding author takes full responsibility.

Declarations

Competing interests

The author has filed a patent application related to the system and otherwise declares no competing interests.

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Data availability

This is a conceptual study; no datasets were generated. All estimates follow from the equations given.

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Figures

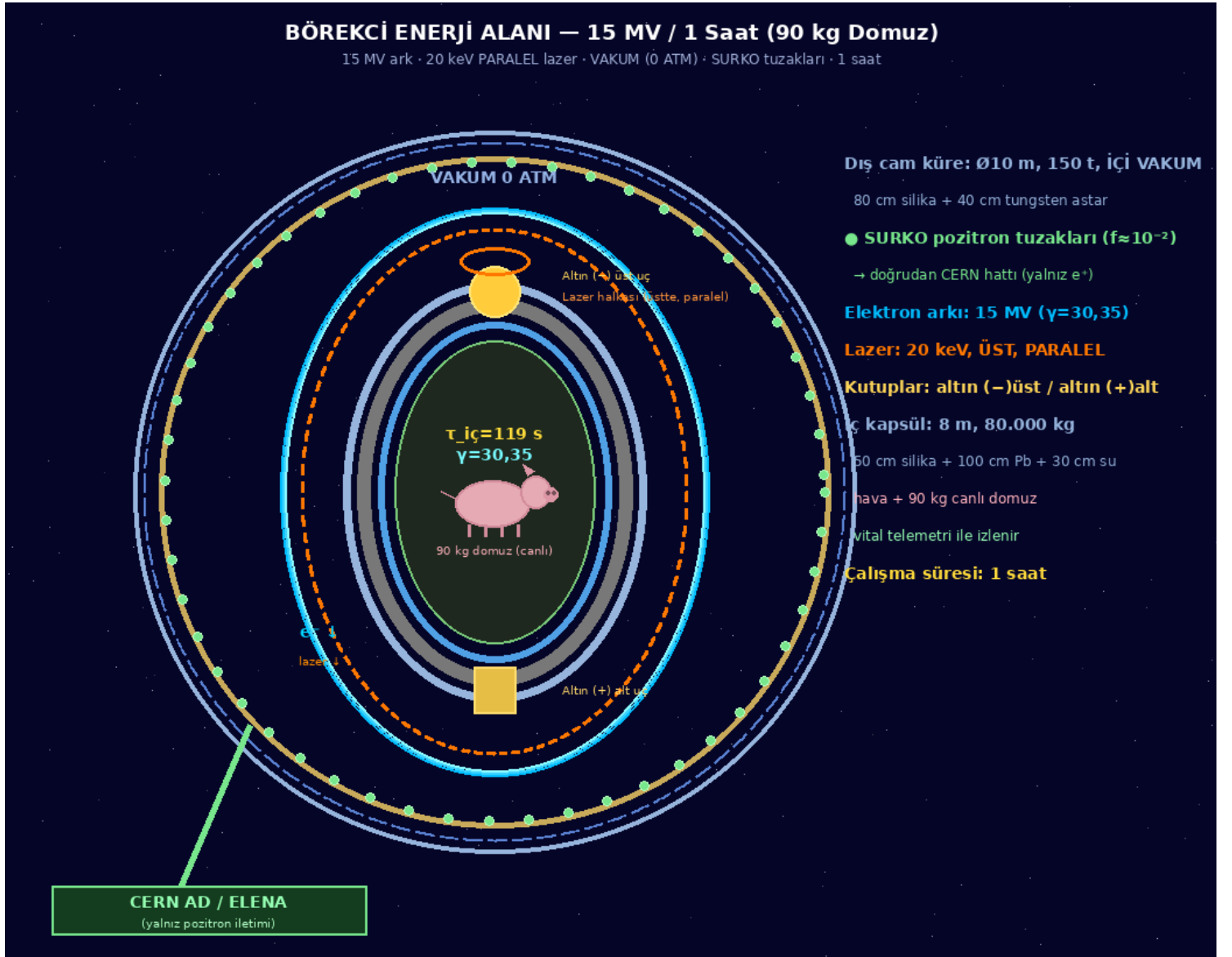


Figure 1

Cross-section of the configuration. Evacuated outer glass sphere (80 cm silica + 40 cm tungsten + Surko positron traps); the energy shell (15 MV electron arc + 20 keV co-propagating laser) encircling the shielded inner capsule (50 cm silica + 100 cm lead + 30 cm water + air + one live 90 kg pig). Poles are gold.

Kâr-Zarar ve Amortisman (1 Saat + 3 M\$ Fare Geliri)

Profit-Loss and Payback (1-hour run + \$3M mouse revenue)

GELİR / INCOME (saat başına)

Fare 'zaman yolculuğu' geliri (varsayımsal)	3.000.000 \$
Depolanan pozitron enerjisinin değeri	0,054 \$

GİDER / COST

Elektrik (1 saat, 15 kWh)	3,00 \$
Kurulum (bir kez, mertebe)	150-650 milyon \$

SONUÇ / RESULT

Saat başına net (capex hariç)	≈ +3.000.000 \$
Amortisman (150 M\$ kurulum)	~50 saat (~2,1 gün)
Amortisman (650 M\$ kurulum)	~217 saat (~9,0 gün)

Figure 2

Profit-loss. One-hour run plus a hypothetical \$3 million pig revenue; operating net ~\$3 million per hour.

Amortisman: Sistem Kendini Kaç Saatte Öder?

Payback Time: How Many Hours to Recover the Cost? (saat başına ~3 M\$ fare geliri)

Düşük kurulum / Low

150 M\$



50 saat (~2,1 gün)

Orta kurulum / Mid

400 M\$



133 saat (~5,6 gün)

Yüksek kurulum / High

650 M\$



217 saat (~9,0 gün)

0 50 100 150 200 250

Amortisman süresi (saat) / Payback time (hours)

Figure 3

Payback time. At ~\$3 million per hour, a \$150–650 million setup is recovered in ~50–217 hours (~2–9 days).

90 kg Domuzun Vital Bulguları (Deney Boyunca İzlem)

Vital Signs of the 90 kg Pig (Monitored Throughout)

Kalp hızı / Heart rate

70-120 atım/dk

Solunum / Respiration

15-30 soluk/dk

Vücut sıcaklığı / Temp.

38,5-39,5 °C

Ort. arter basıncı / MAP

90-110 mmHg

Oksijen satürasyonu / SpO₂

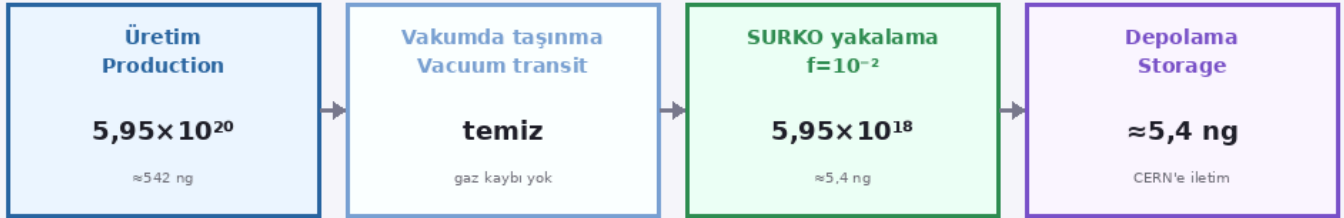
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Figure 4

Subject vital signs. Reference ranges for the 90 kg pig, monitored throughout the run.

Pozitron Üretimi ve Depolama (1 saat, 15 MV, Surko)

Positron Production and Storage (1 h, 15 MV, Surko)



1 saatte ~542 ng pozitron üretilir; Surko tuzağıyla ~5,4 ng (f=10⁻²) bozulmadan depolanır.

15 MV (γ=30,4) 40 MV'den az üretir ama eşğin (1,022 MeV) güvenle üstündedir.

Antiproton üretilemez (15 MeV << 1,9 GeV eşik). Sistem yalnızca pozitron kaynağıdır.

Antiproton cannot be produced; the system is a positron source only.

Figure 5

Production and storage flow. ~542 ng produced in 1 h; clean transit in vacuum; Surko capture of ~5.4 ng; transfer to an external facility (positrons only).