# What Goes Up

**By E.S. Strout MD**

*A newly developed power plant design for interstellar travel will employ the gravitational pull of the universe for propulsion. Galaxies, stars, planets, black holes and dark matter will provide the fuel. This untapped force will far exceed the speed of light.*

*Paula J. Lynch, PhD*

*Space Corps Special Projects*

1.

Six years earlier:

A block lettered 3x5 card held in place by a single strip of Scotch tape read:

RESTRICTED ADMITTANCE

SPACE CORPS SECURITY EXT. 2114

The young woman rapped a single knuckle tattoo against the unevenly stained wooden door.

She waited, tapping a high-heeled black pump on the tile floor with restrained impatience.

Waited.

Glanced at her wristwatch. Fussed with a button on her cardigan sweater vest.

Pounded with a fist.

No response.

She brushed an unruly auburn lock from her forehead and nudged her rimless glasses up her nose with a resolute index finger. "I know you're in there, Professor Schumacher. Open up. Please?"

A muffled voice with a slight Teutonic accent responded. "Go away."

"Antigraviton Response to Magnetic Flux in a Supercooled Matrix. Paula Jane Lynch, PhD, author. That's me. Submitted to The Journal of Theoretical Astrophysics for their March 2027 edition."

Metallic click of the latch disengaging. A small crack in the door appeared and a suspicious hazel eye peered through. "Junk science. Leave me alone."

"You want to see my data?"

The eyeball blinked.

"Open this damn door, then." Paula launched a vicious kick at the lower door panel. "Ow! She hopped on one foot, rubbing her bruised toes. "You sonofabitch. I think I broke my foot."

Robert Schumacher wore an age-yellowed lab coat dusted with cigar ashes. Untrimmed salt-and-pepper hair curled over the neck of his shirt and a green polka-dotted bow tie dangled askew from one wing of the collar. Thick, dark-rimmed glasses and the unkempt tresses gave him the appearance of a scholarly horned owl. He motioned her inside with a brief nod. "First of all, how did you manage to elude Space Corps police?"

Paula unclipped the VISITOR badge from her blouse collar and tossed it on Schumacher's cluttered desk. "Easy. Got lost from my tour group."

Schumacher's hand rested on the desk phone. "I'm calling Security now . . ."

Paula snapped her briefcase open, withdrew a solitary sheet of single-spaced text and rattled it between a thumb and index finger. "If they arrest me you won't get to see this."

3.

Dr. Schumacher hovered over the abstract of her article, humming an off-key version of Mozart's Serenade in G. Finished reading, he folded his arms across his chest and glowered. "Antigravitons, indeed. And you're way too young to be a PhD."

"Hmpf. I'm twenty-eight. Cal Tech graduate. My PhD thesis was on superconductant ceramics reactions at or near absolute zero. Then I got interested in gravity."

Dr. Schumacher pushed his glasses up on his forehead, revealing intense unblinking eyes. "I've been looking for gravitons for twelve years. Haven't found a single one. Why come to me?"

"I've read all your stuff, Prof. You're close to the answer, plus you have the lab setup I need." Paula took a deep breath and exhaled between pursed lips. "Am I boring you?"

A faint grin cracked Schumacher's countenance. "Please continue."

She pulled a sheaf of hardcopy from her briefcase. "Cal Tech leased some time at Brookhaven National Lab's Relativistic Heavy Ion Collider complex for my postdoctoral study. Their directors thought I had wacko ideas about gravity but with Cal Tech paying the freight I was granted access to their new elemental particle detector. Four months worth." She buffed clear-polished fingernails on her blouse. "Wrote my own computer programs, too. "

4.

Schumacher raised a skeptical eyebrow. "You proved quantum units of gravity?"

"Bet your ass, Prof. It took me two months to screen out all other subatomic particles. Then the only dots on the screen had to be gravitons and their negative counterparts."

Dr. Schumacher lit up a cigarette and tossed the crumpled empty pack into a circular file. He stifled a cough. "And your proof?"

"Got a plus-two negative deviation from the gravitometer when I ran 'em together."

The Professor gave her a suspicious half-lidded glance. "But Cal Tech should have provided you with all the space and equipment you asked for. I repeat, why come here . . .?"

"They thought I'd rigged the results."

"Gott in Himmel!" They didn't believe you?"

"Nope. Bunch of elitist ivory-tower fogies. Said I'd disrespected Sir Isaac Newton. So I saved all my findings on disk, fudged negative outcomes into Brookhaven's database and scrambled their password codes. Take 'em years to undo it."

Dr. Schumacher's grin widened just a trace. "I think I like you, Dr. Lynch. But you have . . .?"

"A problem. Yes. They've spread the word that I'm a charlatan. The Journal won't publish my article. And pigs will fly before Cal Tech or Brookhaven springs for lab space or equipment. They asked for reimbursement for damages. I told 'em where to stuff it. Their lawyers are looking for me."

Schumacher tugged at an earlobe, picked up the phone and punched in an extension. His conversation was brief.

"Space Corps cops will watch for suspicious suits and ties."

"I owe you one." Paula pushed pages of hardcopy across the desk. "Hot off my Brookhaven disk. Photos too. Authenticated with times and dates."

Dr. Schumacher read, then reread the report. He marked several passages with a yellow highlighter pen. "You're one pushy lady, but I'm impressed."

“Do I get to see your lab now?”

5.

A hand-lettered sign over the door read:

THERE IS NO GRAVITY

THE EARTH SUCKS

Twelve hundred square feet of concrete deck, low rain-leak stained ceiling with a single skylight almost opaque with layers of grime. No windows. Two lab benches. A cylindrical column crouching in a twelve-foot deep depression in the floor. Its sides were thick with frost. A gray three-foot in diameter circular ceramic platform rested atop it at floor level. Tangles of thick electrical cables crisscrossed the deck, connecting with a computer and electronic gear surrounding the platform.

Paula waved an ineffectual hand at the swirls of mist rising from the icy surfaces of the cold chamber and unbuttoned her cardigan. “Whew. Hot in here. Ventilation problems?”

Schumacher shrugged. He pulled a grungy cigar butt from his lab coat pocket, scratched a kitchen match across a shoe sole and lit up. “Some of the old NASA types are still around, pinching pennies. No money for luxuries like air conditioning.”

He exhaled a stream of bluish smoke toward the ceiling. “Projects Director Cameron Campbell. Eighty-plus years old. Flew some early space shuttle missions and was C.O. of the international space station in twenty-oh-one. Air Force, not a scientist. Now he’s a bureaucrat. Cut my budget by 75 percent.” Schumacher crushed the cigar remnant out on the concrete deck with his

heel. "Lack of progress, he said."

Dr. Lynch's eyes widened in dismay. "Didn't you have a contract?"

The Professor patted his lab coat pockets for a cigar, found none. "Got a cigarette, Dr. Lynch?"

"Don't smoke. And please call me Paula."

Schumacher perched on the edge of a lab bench and chewed on the eraser end of a pencil. "Contract, Paula," he snorted. "One that a young trusting PhD fresh out of MIT signed without reading. Enthusiasm of youth. Stupidity of youth."

An accusatory gasp from Dr. Lynch. "Didn't read it? Dumb!"

A sheepish nod. "All results of my research are property of Space Corps. And the Projects Director gets credit for any awards."

Paula shook her head in sympathy. "Welcome to the real world, Robert."

"I don't sweat the small stuff. I'm a scientist."

6.

Paula scribbled equations on a note pad. "It's like this, Prof. Gravitons are to gravity what photons are to light. The existence of antiphotons was proven in a test trial in Utah. Extraordinary result. There's a hole in the desert floor two miles wide at the Dugway Proving

Grounds." She flipped over an aerial photo of the desert anomaly. "It's still radioactive."

Dr. Schumacher's chuckle rumbled deep in his throat. "I remember.
Lotta heads rolled in Washington. Energy secretary, couple of senators, bunch of Los Alamos people were toast."

Paula hammered a fist on the lab bench. "We're gonna get lots of our own ink when we reverse the pull of gravity. Please tell me you're interested."

"You're going to collide gravitons and antigravitons again?"

"You betcha. Thousands more than at Brookhaven."

Dr. Schumacher mopped his brow with a handkerchief. "That's a lot of quanta. The Dugway problem . . .?"

"No way. Nothing so spectacular. No antimatter explosions, no radiation. Brookhaven's heavy ion collider is intact." Paula scratched an emphatic exclamation point through her equations. "Trust me on this. Any phenomena will be confined to the area directly over your ceramic disk."

Dr. Schumacher gave a shrug, searched his pockets again for a nonexistent cigar. "So where do you keep these antigravitons, Paula? In your purse? Your briefcase?"

Her long-lashed gray-green eyes impaled him with an icy glare. "Cut the male chauvinistic bull, Doc. A package will arrive tomorrow by FedEx. Shipped the day I bailed out of Brookhaven."

Schumacher's eyes widened, giving him the look of an exophthalmic bird of prey. "FedEx? No liquid nitrogen?"

Paula gave him a lazy smile. "You're out of touch, Prof. There's no refrigeration necessary. Antigravitons are almost completely inactive at room temperature. They have an affinity for niobium-platinum wire, stick to it like glue. The single wire is stabilized between the poles of a magnet in a xenon atmosphere, otherwise their half-life is less than a nanosecond. The package is heavy. The magnet and a hundred pounds of lead shielding."

"Mein Gott," Dr. Schumacher breathed. "How do we know . . . ?"

A faint grin curled Paula's lips. "Remember I said almost inactive at room temperature."

Schumacher rubbed the three-day-old stubble on his chin, then snapped his fingers. "We weigh your package."

"Bingo. You're smarter than you look, Doc."

The package weighed eighty pounds.

Paula winked. "I saved a couple of bucks on shipping charges."

Dr. Schumacher's lips pursed in a dubious frown. "Projects Director Campbell checks upgrades. If I don't submit them for approval, the sonofabitch will cancel the project."

Cameron Campbell, an emaciated octogenarian with a cue-ball pink scalp, viewed the lead shielding and magnet with a skeptical eye. “Eighty pounds? More like a hundred-ten.” Dr. Schumacher and Paula lifted the package onto the scale. Campbell stared in disbelief. “Recalibrate your scale. It’s wrong.”

“My scale is fine, sir.” Dr. Schumacher said. He popped the container lid open and removed a tiny sealed ceramic cylinder.

“Now check the weight, sir,” Paula said.

“Hundred-ten pounds.” Campbell gave his scalp a speculative rub. “Sonofabitch. So what do you want from me, Professor Schumacher?”

“An appointment for Dr. Lynch, sir.”

Campbell regarded them with suspicion over the rims of his trifocals. “Space Corps has no funds available to pay lab assistants.”

“I’m a volunteer,“ Paula said.

Campbell gave her a dismissive nod. “Good. You may proceed. Just remember your contract, Doctor Schumacher.”

The Professor waved him off with an impatient hand. “We’ll get to work now, sir, if you don’t mind . . .”

The door slammed behind Projects Director Campbell.

Paula’s stare could have cut diamonds. “Dammit. That Nobel Prize is ours.”

8.

“We’ll need an access port to the liquid nitrogen chamber,“ Dr. Lynch said. “Something very, very small. Angstroms or less.”

“Sit here at the computer, Paula. It’s programmed for subatomic particle insertion, but you’ll need to modify the parameters. The password is SCHIZOPHRENIA.”

“As in Campbell. That’s appropriate.” Dr. Lynch dusted off the seat with a double swipe of her hand, then plopped down, extended her arms and cracked her knuckles. She poised her fingertips over the console, took a deep breath and massaged the keys with rapid, concise strokes. Five minutes later two sentences flashed to the CRT screen:

READY TO ACCEPT ANTIGRAVITON INSERTION.
SPECIFY CONCENTRATION AND SPEED.
“Let’s kick some ass, Prof.”

9.

Dr. Schumacher placed a golf ball on the ceramic platform resting atop the liquid nitrogen cooled chamber. "Show me, Paula."

Dr. Lynch tapped computer keys. "Magnetic field on. Cold chamber disks beginning rotation . . ." A soft accelerating hum vibrated throughout the lab. "4500 rpm, going to 6000."

The golf ball sat, immobile.

She pressed another key. "Commencing minimal antigraviton infusion. Gotta go slow at first. Don't want to blow the roof off."

They slapped exuberant high-fives as the golf ball levitated three feet above the platform. "Damn, Robert! We're going to the stars."

The next steps raised bricks, a bowling ball and a hundred pounds of lead shielding.

"Next phase, Paula. We need to try an organic specimen."

"Can we get a lab rat?"

"Not good enough. Let me." Dr. Schumacher handed over his clipboard, then sat at the console and pressed computer keys. He walked over to the cold cylinder and stood on the platform. "I've got it set on ten second delay for a large live subject. Me." He pointed. "Right up to that skylight. Nine, eight, seven . . ."

Dr. Lynch eyed the data columns on the computer screen with sudden alarm. "Wait a sec, Robert. We'd better recheck . . ."

"Four, three, two . . . Take notes, please."

10.

"Where's Dr. Schumacher?" Projects Director Campbell demanded. "Got the contract revisions for him to sign. Dr. Lynch? Talk to me. I want him now."

Paula gaped in disbelief at the newly formed breach in the skylight, where evening stars peeked through. "He's halfway to the galactic core by now. We underestimated the attraction of Sagittarius A."

Campbell scowled. "English translation please?"

"Sagittarius A, sir. It's a gigantic black hole at the center of our galaxy. Closest one to our solar system. We didn't factor in this much gravitational pull . . ."

"You're making no damn sense."

Paula's face flushed an angry crimson. "That figures. You wouldn't understand . . ."

Campbell shook an index finger in her face. "I understand dollars and cents, Ms. Lynch. You're outta here. Now where's that misfit Schumacher?"

A contrite grin crossed Paula's face. "Sorry, sir. Just a little theoretical physics humor." She seated herself at the computer. "Dr. Schumacher is replacing that crummy skylight. Out of our pockets, not yours. Just walk over to that little gray circle and look up. You'll see him just fine."

"I'm getting tired of your bull, you and Schumacher." He stepped to the ceramic disk and peered into the night. "I just see stars. What the hell is that humming noise . . .?"

Dr. Lynch tapped the keypad. She covered her mouth with a hand to stifle a giggle. "Hello Nobel Prize."

The End