

Chapter 1

Mountain View, California: September 2026

James Coulter panned his gaze around the small lobby of the office building. Except for the reception desk—where Alyssa sat, working silently—and a few generic office chairs, it was bare ... and undecorated. He hadn't even put up a sign for the company yet. He'd purchased this building because of the location, as it stood within a few miles of the resources he needed and it also offered easy access to the major roadways but was far enough off the main roads to not be distracting. He'd never really thought about the way it was decorated. And at the moment, it was barely worth a thought, given why James was standing there just inside the doorway.

He clenched his right hand into a fist and then let it relax again, chiding himself for his one nervous tic. But he couldn't blame himself too much. He was, after all, waiting for his latest guest to arrive—and she would be his greatest win ... *if* he could convince her that he wasn't a nutjob.

Seconds and then minutes passed, and finally James noticed a car pull up outside. He watched as a tall woman with dark-brown hair exited the driverless vehicle, an overnight bag slung over her shoulder. He tried matching her appearance to the many photos and videos he had found of her online. Still, she looked less ... *polished* in person. James, though, couldn't put a finger on the exact difference in her bearing. It almost seemed as if she was less confident in person than she'd seemed on various sites around the web. This would be their first real interaction, as James could hardly count the Skype chat they'd had a week ago. That version of her had looked far too pixelated to give him a clear image of her face. Of course, the ability to get any connection at all out of northern Siberia at this time of year was nothing short of a miracle, so James hadn't complained at the time. At the end of the call, he'd been elated (and still was) that he had finally coaxed Dr. Galina Kaskovich out of her frigid wasteland, even though it offered excellent views of the night sky and was one of the best spots to photograph and track the movement of celestial objects.

As she drew closer to the building, James took stock of her appearance. Well dressed, although a bit on the conservative side for his tastes. Slightly overweight, but not obese—a trait far more common in

the hard sciences than was normally portrayed in sci-fi movies, where every scientist could double as a runway model. And definitely tall, especially now that she stepped through the front entryway—probably five-ten ... or taller, maybe.

Taller than me, James mused as he smiled at her.

“Ms. Kaskovich?” James reached out his right hand as casually as he could muster.

“*Da* ... Dr. Coulder? It’s nice to finally meet you in person.” Galina grasped his outstretched hand, giving him an awkward smile that he took note of. “And please call me Galina.”

“Nice to meet you too ... Galina.” He smiled back. “And feel free to call me James. I’m glad we could finally drag you away from that ice cube you call a research facility.”

He kept up his smile as he continued shaking her somewhat large hand. He could feel its warmth—and her sweaty palm. *Seems awfully nervous ... and a little socially awkward*, James thought.

“Thank you ... James,” Galina said in a quiet voice, also still smiling. “I’ve been looking forward to leaving. Contrary to the popular misconception, not all Russians like the cold. If it wasn’t for my Russian citizenship, I would never have been there at all. Of course, the perfect

viewing angles, equipment, and visibility for studying the sky didn't hurt either. But I far prefer my father's home. Connecticut can still be cold, but it's nothing like that frozen wasteland, Vorogovo." She retracted her hand from his and then rubbed her hands together, looking around as if not knowing what to do with herself. "I'm glad my family split time between Russia and the US, and I'm glad I was able to have winters in New England rather than Siberia."

James nodded, keeping a small smile on his lips. She was babbling now, obviously uncomfortable.

"Of course," she went on, "neither place comes close to the weather here in California."

Now James noticed her feet fidgeting. Maybe he hadn't given her a warm enough welcome?

Before she could keep going, James said, "Is something wrong, Galina? You seem ..." He paused to gather his thoughts and make sure he wouldn't add to her embarrassment, and then he continued, "... a bit anxious."

She gave a tight smile, then looked down. "I've never been good around people. I suppose that's why I went into astrophysics—not a lot of personal interaction there. My time at CERN was particularly difficult.

I tried counseling sessions to work on it more than I care to admit, but I was never able to get over it completely.” She paused, staring off as if in deep thought. “Please understand ...” She hesitated and then looked away again.

To James it seemed as if she was trying desperately to find the right words.

Galina looked back at him. “As I get more comfortable with people, the anxiousness goes away.” She paused once more. “Mostly.” Now she gave an awkward smile.

James smiled and bobbed his head in agreement. “I get it, Galina. Why don’t we go somewhere less public?” He motioned for her to follow. “Come on, we can go have a seat in my office.”

Galina nodded. “Thank you.”

James turned and led her away from the front entrance. “The Tank is a small place at the moment—just myself ... our receptionist, Alyssa ...” He gestured with a hand toward the reception desk and smiled at Alyssa. “This is Galina Kaskovich, Alyssa.”

“Nice to meet you,” Alyssa said, smiling.

Galina offered a small smile. “You too.”

James walked on and continued, “And finally my research assistant, Michael, whom you’ll meet in a few minutes. And here we are,” James said as he walked through the door to his office. “Have a seat.” He motioned to a chair opposite his desk, near the lone window.

“Thank you,” she said.

As Galina made herself comfortable in the chair, James sat down and noticed her sizing up his office. He let his own eyes take it all in, noting the antiseptic quality to the chairs and walls, along with the messy desk full of papers strewn in a haphazard fashion. For the first time he saw it through someone else’s eyes. *I’m going to need to do something about this office if I’m going to hold interviews in the future.*

“It’s not much right now,” James said. “As we grow, I’m hoping to utilize the lab and office space in this building. I purchased this location specifically with the idea of expanding. It cost a little more than I would have liked, but the location and the proximity to world-class facilities in the San Francisco area are critical for us.”

Galina nodded. “You don’t have to convince me on the scientific merits of the West Coast, James. I’ve known that for a while. Honestly, though, it was your paper outlining the possibilities of merging quantum entanglement and localized gravity fields that made me finally accept

your invitation.” She paused, then continued, “Well, that and three calls a day for two weeks to my satellite phone.”

She smiled, and so did he before reaching into a mini-fridge to grab two bottles of water.

“You are nothing if not persistent,” she went on. “Those calls alone must have cost you a fortune!”

James nodded and offered a bottle of water to her.

She took it and said, “Thank you.”

“Yes, well,” James said, “that paper is the tip of the iceberg as far as I’m concerned.” He gave her what he knew to be a sly smile, offering her a little bait.

Galina replied as he’d hoped: with a quizzical look. She slit her eyes and thought for a few moments. “You ...” she started, then trailed off.

James noted her face contorting a bit and took it as her expression of deep thought.

Then her eyes widened. “You’re trying to figure out instantaneous communications, aren’t you?”

Now he could see her scientist side. She was on the edge of her seat, a look of mild excitement clear on her face.

James smiled, and just when he was about to respond, she spoke again. “I mean, quantum entanglement doesn’t have many practical applications that haven’t already been explored. Quantum computing has already been done, and you don’t have the background to be an encryption guy, sooo...?” She left the question hanging there for him.

James let his smile widen, leaning back in his chair while uncapping the bottle of water. He brought it up to his lips, but stopped and said, “Well, yes, that’s part of what I’m trying to do—a way point, if you will. But think *bigger*.” He eyed her as he took a sip of water.

Galina tilted her head sideways, and then her eyes narrowed a bit.

James kept himself from smiling. *I have her now. She’s intrigued.*

Finally she opened her mouth and the words came out fast and with conviction: “Bigger than instantaneous communications? I mean, I know you mentioned the Casimir effect in your paper—and hinted at relativity testing inside a local gravity bubble. But what could be bigger ...” Her words trailed off, and then her eyes lit up again. “Oh! You mean faster-than-light travel.”

James smiled again.

Galina leaned forward in her chair, and her voice rose an octave higher as she said, “Are you thinking of dimension hopping? Wormholes?” She paused and her face grew serious again. “You know as well as I do that the math on traversing an event horizon is already proven. Matter just can’t survive the transition, and beyond that the—”

James held up a hand to stop her. “Galina, if you’ll indulge me for a few minutes, I want to explain to you why I started this company.” He tapped his forehead, thinking for a moment. “My dad was a piece of shit. Pardon my French. Made his money in online porn, and I detest what he did with his life.” Now as his thoughts moved forward, he smiled, looking down for a second. “My mom was a wonderful woman, and she raised me the best way she knew how. My father was rich—really rich—and while they never lived together, my mom and dad always kept a cordial relationship ... although as I grew older, I could tell that she was disgusted by everything about him as a person.”

Now James stood and walked slowly over to the window and looked out. “But as gross as the porn industry might be, it’s very lucrative. My mother never hid what he did from me, but she also never made him out to be the bad guy. And to tell the truth, to me he was an okay dad.”

James turned and sat on the windowsill to face Galina again. “He wasn’t around much, though, and so my mom raised me. Dad never did miss a payment. And Mom only took enough to give me a decent life. She wanted as little from him as possible.”

Galina gave a small nod, but James could tell she couldn’t see where he was going with all of this.

He went on, “Dad lived down in LA while I grew up here in the Bay area. He’d fly up every few weeks and take me to a ball game, or we’d stay in a hotel room for a night or weekend. But the best times I had with him were at the museums.” James paused, making sure she hadn’t zoned out. “When I was young, around seven or eight, he’d take me to a place called the Exploratorium. It was my favorite spot for about three years, and I’d ask to go there every time he came up. And even though he was a porn mogul, he was also a big fan of science and technology. When I showed interest in stars and celestial mechanics, he started bringing me to the Hagar Planetarium and the Fremont Peak Observatory.”

Galina gave the tiniest of nods and a faint smile, and James took it as a clear sign that he’d triggered thoughts of her own childhood.

“I couldn’t get enough of it,” James continued, “and I had some talent for understanding it. Then ... my dad died—when I was fourteen. I

still have the telescope he gave me for my birthday earlier that year. It's part of the reason I became a physicist. And it's a small part of why I started this company. I don't want to just *look* at the stars; I want to *visit* them." James found his hands moving now, pointing skyward, and he could feel the passion rising. "When I graduated from college, I saw the pride in my mother's eyes, and I made her a promise that I would find a way to make it up there." Now he nodded skyward. "When I was twenty-four and studying for my doctorate in astrophysics, I attended a panel on the physics of science fiction and faster-than-light travel. I did it on a whim ... and because I was burnt out with all the study and lab work. It was where I first really learned about Miguel Alcubierre."

James paused here at seeing Galina's sudden skeptical look. He held up his hands, ready to defend his position. "Oh, I'd read him in passing, but the books and papers all talked about his principles as nothing more than amusing side notes. I can see from your look that you agree. And, while theoretically possible, they consume so much power that they would be essentially impossible to build."

Galina nodded in agreement.

James went on, "But this panel changed all that. Some of the leading physicists in the field had recently read some amazing new proofs

about exotic matter and negative energy. When I heard all this, it clicked.” He snapped his fingers. “I had to pursue it. So when the panel was done, I knew that I needed to start my own company. My dad had left me an inheritance, a big one, so I decided that I’d spend a few years learning my craft working for someone else, then I’d start my own company and we would figure out faster-than-light travel, or we’d fail brilliantly.”

Galina sat there, unmoving, looking a little dumbstruck from what James could see.

He chuckled. “Yes, Galina Kaskovich, your work with exotic matter and negative energy has made my dream possible.” He paused, eyeing her. “At least ... that’s my hope.”

Before she could reply, James pushed himself off the windowsill and stepped to his desk. He sat down and reached into the top left drawer, pulling out a small model of the USS *Enterprise* from the original *Star Trek* TV series. But this model was unique. It looked as if James had taken a clear acrylic bubble—like those from an old gumball machine, but about twice as large—and glued the model’s base to the inside.

He looked at Galina and then slapped the model down on the desk.

She startled, likely figuring he used far more force than was wise considering the apparent fragility of the model.

James waited as she sat staring at the model for a few seconds.

Finally she looked up at him and said, “A fictional spaceship from sixty years ago?” She shook her head. “You can’t believe that they got it right. Did they even explain how they would travel faster than light on that show?”

James nodded to her as she made her statement. This criticism, he was ready for. He barely waited for her to finish before jumping into the answer he already knew by heart: “You’re right, Galina: it was a show, and it was fictional, and most of their technobabble was nonsense, but they came closer than they thought with the warp drive. Sure, they called it ‘subspace’ instead of a special-relativity space-time bubble, and they described it as an anti-gravity field whereas it’s more of a fluctuation in space-time, creating what could be thought of as riding a wave of space-time through curved space, but essentially they created, out of the mind of an entertainer, an Alcubierre drive. In fact Alcubierre said in many interviews that *Star Trek* was his muse for his drive theory.”

Galina sat there in stunned silence, her water forgotten in her hands. Her only thought was, *This man is nuts!* But she couldn't quite find the immediate defense she needed to disprove him. She knew he was brilliant; she'd read his papers and research. In theory the math proved it did work (sort of), but everyone knew that faster-than-light travel was a pipe dream ... right? It was intriguing, though. Causality problems aside, she now realized why he had chosen her. She'd been part of the team at CERN that had recently mathematically proven the highly improbable existence of negative-energy exotic particles and how to generate them—theoretically, at least.

A chance to really stretch my intellectual muscle might be nice, she thought. *And how many great concepts have come out of projects that reached for the impossible?*

What could it hurt if she was able to get paid to research the idea?

As James finished his pitch, Galina said, "I'm not sure I buy what you're selling, but I'll admit, I can't find an argument off the top of my head that disproves Alcubierre's theories now that we've proven the existence of negative-energy exotic particles—other than power requirements that would be equivalent to a small star, of course."

She watched as James rose again, his smile now even wider than before. “And that is why we need the best minds to work on the issue. I haven’t found out how yet, but I have a hunch and I just know that combining the drive theories with the new discoveries about the Casimir effect will significantly reduce the required output energy to warp local space-time. And nobody’s smarter about local space-time effects than you. That’s why I need you in here.”

Galina felt a lump in her throat. It sounded so tempting, but ...

A knock on the open door broke the tension for Galina.

“Ah, Michael,” James said. “Just in time.”

As James waved a hand to motion this Michael forward, Galina turned to see a young-looking man, a little disheveled in appearance, wearing glasses, and very thin. With his light-brown hair and glasses, Michael looked like every other researcher she’d met. The stack of papers in his left hand completed the scene.

“I’ve finished those calculations, James,” Michael said as he handed over the sheets. “I don’t know why you keep writing out your notes by hand. It would be just as easy to scan them in or use a voice-to-text application and keep them electronically.”

James accepted the papers and tossed them to the side in a haphazard way, then sat back down. “We can talk about my filing methods later, Michael. This is the person I was talking about yesterday. Dr. Galina Kaskovich,” he said, waving his arm in her direction. “Galina, meet Michael Rinstad. Michael is a post-doc from Berkeley, looking to make a name for himself in quantum theory. I thought he might be useful in figuring out any entanglement issues that come up.”

“It’s nice to meet you, Doctor,” Michael said with a smile. “I’ve read some of your work. Your conclusions are brilliant. I especially like your theory about the effects of distant black holes on faster-than-light relativity bending and the travel speed of the universe.”

Galina gave a little smile and dipped her head toward him. “Thank you, Michael. It’s nice to know someone reads my work. That theory kept me up for months before I finally solved the math. Don’t ever let them tell you that theoretical physics is all glitz and glamor.” Her smile, she knew, was halfhearted, and the joke had been delivered more deadpan than it had sounded in her head.

It fell flat for a good three seconds before James chuckled, seemingly out of pity, and then Michael finally gave a little laugh.

Galina could feel her face growing warm and figured her cheeks were turning red.

James stood up and cleared his throat. “Yes, well, now that you’ve met the team so far, why don’t you come with me and I’ll show you what we’re about?”

Galina furrowed her eyebrows and shook her head. “You mean,” she said, “you’re doing more than just discovering a warp drive?”

Michael looked at James, then rolled his eyes. “I told you not to open with the warp drive. You’re gonna scare everyone off.”

James gave Michael what looked to Galina like a slightly agitated glance, and then he motioned for her to follow again. “Well,” he said, “we need to pay the bills, and while warp-drive technology and quantum communications will be quite lucrative when we figure them out, we need to keep the lights on in the meantime. And there’s plenty of work for people like us. Government agencies and large corporations both require help with complex math and physics, and when they don’t have the expertise, they come to places like this.”

Michael said good-bye to Galina, then she followed along as James led her to a larger room across the hall. This room had giant whiteboards with what she recognized as flow calculations on it, although

they seemed to be incomplete thoughts or just notes written to work something out temporarily. The room had two complete workstations with computers, and she could tell by the lack of any personal effects that these were for doing lab work only. On the far wall stood a rack of noisy machines, with another monitor and keyboard atop it. It looked to Galina like any cheesy sci-fi movie version of a *mad scientist* computer, but she knew it for what it was: a bank of servers that ran more complex calculations.

“This is our main work room for doing simulations and project work,” she heard James say as he swept his hand across the room. “In the back there ...” He pointed to the loud and colorful rack of servers. “... is our server farm. It’s small by today’s standards, but it can do some of the mid-level simulations that we require—although the big problems that you’d be working on would probably require time at one of the local university supercomputers.”

She nodded, knowing that gravity calculations and the like were always resource intensive.

“We’re currently working on two projects,” James said, facing her. “The first is measuring interference particles in extra-orbital solar arrays for NASA, and the other is for nanoparticle interaction for an

injection-molding system for an oil company in Brazil. Neither is very exciting work, but we spend a few hours a week on each, and it's enough income to keep us in the black."

"I understand very well," Galina said, "as it's not all that different from my work in Russia. In exchange for resources and facility time, we had to solve some relatively basic problems for the Russian Space Agency from time to time."

The tour of the Tank ended up taking an hour, at the end of which James bid her farewell and asked that she get back to him in the next few days as to whether or not she would accept his offer. It wasn't the best offer she'd received. In fact a few government agencies had offered her more than quadruple what he did. But she'd tasted government work. It was supremely boring, rigid, and ultimately fruitless labor.

CERN had also reached out to her, inviting her back, this time as a full-time lead researcher with her own small team and time on the Large Hadron Collider—LHC. While she was excited by the prospect of receiving time on the collider, the idea of working in a location with dozens or even hundreds of other scientists at all times was off-putting to her. Plus CERN was not known for its pleasant atmosphere to newcomers.

And let's face it, she thought, I can only do so much with a collider.

It wasn't really her modality for working anyway. She wanted to get her hands on real particles and subs like any other advanced physicist did. After many years of continual operation, the LHC was starting to show its age, and it would eventually have to come down for extended repairs, which meant possibly years of downtime.

For the next two days Galina relaxed at the San Jose Fairmont hotel—at James's expense—which offered her some needed rest after six months of intense research followed by almost a month of interviews and Q&A's regarding her next job. While soaking up the sun at the rooftop pool or sipping a drink in the hotel lounge, she mulled over all of the job offers. By the end of the second day, Galina decided that the job with James's company was as good as any. She liked him—and even Michael—and it couldn't hurt to do some “real” theoretical science again.

Galina's decision led her to first pick up the room phone and order the longest massage session they had available for that afternoon. After hanging up, she smiled and reached for her cell phone. She found the number James had given her and touched the *Call* button.

“James, good morning. It’s Galina Kaskovich. ... Yes, I’m well, thank you. ... I’ve thought it over and, well ...” She paused. “I’m in.”
