Featured Stories

JPL Chief of Staff Gail Robinson. Photo credit: Dan Goods.

Gail Robinson's Inevitable Path to the 9th Floor

By Vince Robbins

Every workday, JPL Chief of Staff Gail Robinson leaves her office on the 9th floor of Building 180, walks to her car, and drives into the sunset toward her home in Manhattan Beach — and drives, and drives.

"I am a master of books on tape," Robinson laughs.

She says the long commute helps to bookend her day: The time in the morning helps clear her mind and focus on the challenges ahead, while the drive home creates separation between work and home.

"I look at the Lab in the rearview mirror and I say, 'OK, now I'm going to transition into my home life.' By the time I get home, there's kind of balance at both ends."

After a career that spans over five decades at JPL, Robinson is ready to take her final post-work look in that rear view mirror next month when she retires on Feb. 3.

Thrown Into the Fire

Like all great stories — and careers — Robinson's path to JPL started with a little serendipity. Her neighbor worked at JPL, and encouraged the then-18-year-old college student to apply for a summer student job on Lab.

The year was 1970 — back when "we didn't call them interns, we just called them summer students," Robinson remembers.

Robinson spent those first few months coding a paper-based professional capabilities questionnaire that served as a database of employee skills. The work was interesting enough that, every summer after that, Robinson found herself back at JPL as a summer student doing various clerical assignments.

Robinson's early days as a summer student in the 1970s.

When she graduated from the University of San Diego with a degree in history, she knew she didn't want to teach, so she applied for a full-time secretarial role at the only employer she had any connection to: JPL. Not yet 21 years old, Robinson was hired as a section secretary in the organization that was in charge of operations at Cape Canaveral at the time.

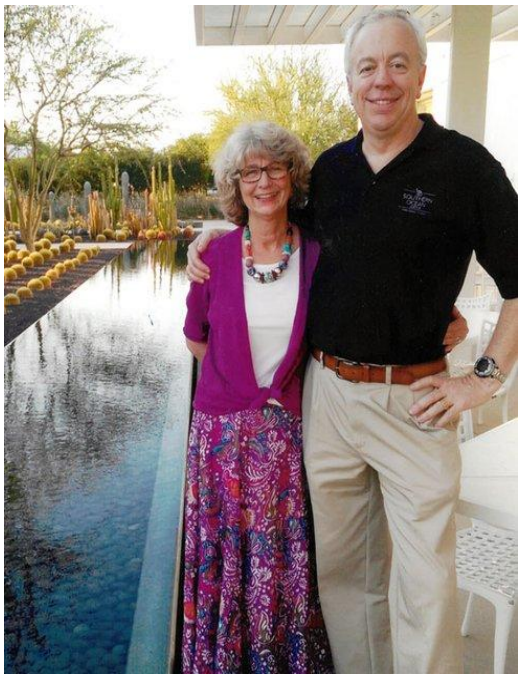
"Here I was — I'd gone to Catholic school for 16 years — and I go to this operations organization, and oh my gosh, these were, like, really rowdy, rowdy guys," Robinson recalls. "I had my little eyes opened…I was really thrown into the fire — the life fire."

Still, Robinson kept her cool and enjoyed those early days on Lab. She looks back at that era as an especially social time at JPL.

"Every Friday night, we'd go over to what used to be called Reflections, which is The Dish [restaurant on Foothill Blvd.] these days, and there would be a group of JPLers," Robinson says.

And it wasn't just drinks at Reflections, it was also friendly connections during the workday that kept the camaraderie vibrant.

“Actually, I met my husband here,” Robinson added casually.



That would be Bill Robinson, then an Academic Part-Time JPLer studying electrical engineering at UCLA. Bill worked in the same building as Robinson, and the two would cross paths in the hallway. A short chat on Lab was followed by a connection during happy hour at Reflections, where they got to know each other better and ended up dating. They’ve been married for over four decades.

Launching Her Career

Robinson continued climbing the ladder of secretarial roles throughout the 1970s and ‘80s. After earning her MBA, she began working as an administrative assistant, which later evolved into the role of Business Administration Manager.

After a few more years working on the line side of JPL, Robinson made the switch to projects. She was hired as the BAM for her first flight mission: the Infrared Astronomical Satellite, known as IRAS, in the early 1980s.

“That’s where my career really took off,” Robinson says.

Robinson with the Mars Geoscience/Climatology Observer (MGCO) project office team around 1988. Image courtesy Gail Robinson.

Following IRAS, Robinson became the BAM for Mars Observer, a mission that would bring the highest highs and the lowest lows of her career.

“[Mars Observer] was the best experience, I have to say. You really learn when you’re on these projects. It’s so great to have a group of people together [with] a common goal,” Robinson recalls. “Sept. 25 was the launch date and we knew it, and we all worked toward it. It was great.”

Robinson remembers traveling to Cape Canaveral with the Mars Observer team for the launch in September 1992.

“Being at your first launch is really, really quite exciting,” Robinson says. “You’ve worked so hard with this team. You feel like you’ve just seen this thing develop, and all of a sudden, it shoots off into the air. That’s a great memory.”

But when Mars Observer ended in failure — all contact was lost just before the spacecraft entered orbit — it was devastating.

“You just felt like somebody died,” Robinson says.

In the wake of the spacecraft loss, JPL sought to redeem itself with proposals for future Mars missions. Robinson participated in an internal study in which three teams (two external) worked on potential future Mars missions. Her team used the codename “Phoenix” for their project, hoping it would rise from the ashes of the Mars Observer failure.

The codename worked: That project would go on to become Mars Global Surveyor, the first successful mission to the Red Planet in two decades. Mars Global Surveyor paved the way for many more successful missions in the Mars program in years to come.

Robinson’s career also restarted. She went on to be the BAM for Mars Global Surveyor, then the BAM for the Mars Directorate. During that internal study, she had a fateful encounter with the then-Director For Space and Earth Science Programs Directorate. His name was Charles Elachi, and he would come to rely on Robinson for decades to come.

After the failure of the Mars Climate Orbiter and the Mars Polar Lander in 1998-99, JPL combined the Space and Earth Science Programs Directorate and the Mars Directorate. This organizational restructuring brought Robinson and Elachi’s paths together.

As it happened, Elachi’s BAM chose the Monday after the restructuring announcement to retire. “So Charles kind of got stuck with me,” Robinson says.

When he became director of the Lab in 2001, he asked Gail to join him on the 9th floor as the BAM for the Office of the Director — a job that hadn’t previously existed. And that’s where she has remained for the last two-plus decades.

Robinson recalls those first years after Elachi was appointed director of the Lab with fondness.

“I had the best job on the Lab. It was just a great experience working for him,” Robinson reminisces. “Just seeing that shift in the population and their attitudes and [Elachi’s] engagement really changed the feeling and the culture, which I think was really good for us. We used to joke with him that he was the group supervisor for the Laboratory.”

And when NASA called Elachi in 2010 and informed him that each NASA center needed to appoint a Chief of Staff he knew exactly who to select.

“Charles walks [into my office] and says, ‘You want to be Chief of Staff?’ and I said, ‘Fine,’” Robinson says. “I just kind of kept doing what I was doing.”

As for what’s changed on Lab, Robinson says she’s happy to see that JPL has become more and more diverse. Earlier in her career, Robinson chaired the Advisory Council for Women and emphasizes how much things have changed since then.

“I remember first traveling with the Mars Observer team, I was always the only woman who was traveling with 10 men. I was always by myself, and that’s changed completely,” Robinson says. “We go to the chief of staff meetings and it’s [mostly women].”

Although Robinson has remained in the Office of the Director since 2001, she explained that it has felt like multiple different roles over the years.

“The job for Charles was completely different than the job for Mike [Watkins],” Robinson says. “Every mission is different, and you work with different people.”

Sit and Do the Work

Reflecting on her long career and the success that she achieved, Robinson keeps it simple, recalling the advice she has given to many mentees over the years.

“You simply have to sit and do the work that you’re hired to do, and do a really, really good job,” Robinson says.

In the early days of working on Mars missions, Robinson remembers taking review board minutes and writing summary reports. It may have been “just” note taking, she says, but she took the work seriously and found that the means were just as important as the ends.

“The exposure I got at my age and where I was in my career — you couldn't have bought it,” Robinson says. “I didn’t think what [the opportunities] could lead to when I was doing [the work]. I just wanted to do it because I really got engaged in the projects…and I just found it fascinating.”

While she could never have predicted the trajectory her career ultimately took, she emphasized that being indispensable to the people who relied on her was the key to her journey.

“I think a lot of my success is because I’ve been very collaborative with people, I’ve nurtured relationships, I’ve built relationships,” Robinson says. “People depend on you, they know you have the brains to do the job, and they see the product that you produce is what they want. You go above and beyond, but you just really do the job you’re hired to do in the best way you can. And you show up...If you do that, you will get noticed.”

Robinson enjoys her last days on Lab. Photo credit: Dan Goods.

Exploration Never Ends

While Robinson's career has revolved around spacecraft, in her office on the 9th floor of Building 180, Robinson prefers to be surrounded by dogs: in the form of photos, picture frames, and figurines.

"I'm a dog person," Robinson says, looking around her office. "We've always had two dogs at the same time. Collies, chocolate labs, yellow labs."

Robinson points out past pairs of dogs: there was Liberty and Justice, Morgan and Whitney, Splash and Breeze, and now there's Skye. Just the one.

"We have only one now, since we're retiring," says Robinson. "She's delightful, but a handful."

After decades of successful Mars missions and the demands of JPL Lab directors, if anyone can manage a handful, even in retirement, it's Robinson. She's looking forward to learning how to sketch, improving her golf game, and joining a Manhattan Beach women's club. She also plans to continue traveling with her husband — a gorilla trekking trip to Africa in 2024 is already on the calendar.

With many more adventures ahead, Robinson can look at JPL in her rearview mirror as she drives off Lab on Feb. 3, confident that she leaves behind a legacy of service that JPLers old and new will long remember.

When asked about why she thinks JPL's work is important for humanity, her answer could just as well apply to the next chapter in her own life: "If you don't keep exploring, you're just going to get stagnant."

Over 60 feet of display has been installed in the ISIL viewing gallery aiming to better educate lab and the public on what they do. Image Credit: PhotoLab

A Milestone Makeover For ISIL Viewing Gallery

By Taylor Hill

Building 317, home to JPL's In-situ Instruments Laboratory (ISIL), is one of the most popular destinations during Family Days and Explore JPL events. From its viewing area, visitors can glimpse the Mars-like testbed environment in front of them and check out engineers working on the latest simulations for current and upcoming rover missions.

Thanks to a new installation by DesignLab, visitors now have something to see behind them as well.

A 60-foot-long dynamic and illustrative timeline runs along the back wall, highlighting the major missions that have gone through testing in ISIL. Through a series of images, dioramas, light boxes, and more, the three-dimensional panorama covers the span of Mars missions that have been put through their paces in the "sandbox" over the years.

In this week's story, DesignLab team members Lauren Shapiro and Kaelyn Richards describe how the timeline came together, its various components, and what makes it a special stop on Lab.

Q: Where did the idea for a timeline on this wall come from? Can you talk about what was on the wall there before?

Lauren Shapiro, Graphics & Production Lead: Prior to the installation, the hallway in the viewing gallery was bright orange and had a few old images (that hadn't been updated since MER) that were falling apart and didn't have any context for people touring the lab without a guide. The whole concept for this installation came about because we wanted a person who had never been in the building before to be able to really grasp what the team does in there without someone to guide them through it. We thought

that a timeline would be an effective way to show the progress and development of missions in ISIL. It's an important space on Lab that is part of public tours, and it deserved a facelift.

Q: This project stands out, literally. Can you explain a bit of the process that went into building this 3D timeline, some of the materials and video footage that you incorporated into it?

Kaelyn Richards, Graphic Designer: From the beginning, we wanted this installation to have a strong textural element to it. It's one thing to see all the cables, hardware, and gravel from way up in the viewing gallery, but it's a unique experience to be able to take a look up close at some of these elements. We were able to work with the Mars Public Engagement team and others to get some real artifacts relevant to the display, footage of testing in ISIL, and some other valuable input for the space.

Shapiro: Working at JPL, we see so many bits and pieces of hardware and mission-related artifacts just lying around and not being used anymore. It's easy to forget how meaningful these artifacts are and how they tell the stories of the missions they're from. We'd been wanting to create a space somewhere on Lab that would showcase some of these items and display them in a special way. This seemed like the perfect space for that.

To make this space come to life, we had panels installed to create a faux wall which stands out a few inches from the real wall. This enabled us to have inset elements and play with dimension, as well as add lighting. To tie the timeline together, we used copper-colored accents to evoke the color of the Martian landscape.

Q: What are your favorite elements in the timeline? Are there any hidden nuggets or details that especially stand out for you?

Richards: One of our favorite elements in the display is the shadow box in the center of the timeline. It features 5 pedestals that feature all of the Mars missions that have come through the building in chronological order. The rovers (and lander) are 3D printed and to scale with one another. The case also features 3D printed people for scale next to each, to give a sense of how large the spacecraft are. Surrounding the 5 pedestals is the actual crushed garnet material from the sandbox testbed below so that viewers can get a close-up look at something they wouldn't usually be able to see.

Shapiro: Another one of our favorite parts of the design is the section of frequently asked questions at the end of the hallway. This addition goes back to our main goal of people being able to gather as much information as they can without a guide. We had the Mars Public Engagement team as well as others who work within the building provide us with the most commonly asked questions they get when showing others the space. We used that input to form a question and answer graphic on the wall, which can be added to or modified as needed.

Q: What do you hope this timeline conveys as people enter the ISIL viewing gallery?

Richards: We hope that when people enter the space, they will be drawn in to learn more about the role of testing at JPL. Testing plays an integral role in the success of missions at JPL, and it's not something that is as prominent to visitors as mission operations and assembly. This display educates viewers about some of the ways testing has been performed both in ISIL and in the Mars Yard.

Q: As new missions come through and new parts come in, is there space to grow the timeline on the wall?

Shapiro: In the existing mission artifact display cases, we hope to add more objects as they become available. We certainly have the space to add to them. If anyone has relevant items they would like to contribute to the artifact cases, please get in touch with us.

Richards: As for adding new missions in the future, this is one of the main reasons we didn't go with a traditionally formatted timeline, because we want to be sure we can expand it as new missions come through the building. There is quite a bit of space at the end of the hallway for us to expand down the road. We will have to see what is next in store and come up with a new and creative way to fold it into the display.

The redesigned proposal rooms in Building 301 include new features such as soundsoak walls, jump seats, and lights that can be dimmed and adjusted by color temperature.

Proposed and Awarded: Fresh Digs for Mission Hopefuls

By Celeste Hoang

At the end of a long hallway in Building 67, there's a sign that reads, "A journey of a billion miles starts with a single proposal."

That building is the original home of the Foundry Proposal Office, which oversees 600-800 JPL proposals every year, ranging from major missions and instruments to research, analysis, and technology.

The group is long-familiar with massaging concepts and providing teams across Lab with the visual and verbal makeovers for a successful pitch — but what about a makeover for the spaces where the teams spend hundreds of hours in search of inspiration?

"We really want to have effective and inviting places where teams can come together," explained Manager Rolf Danner.

Beginning in 2020, the Proposal Office — which sits under the Office of Formulation — turned the lens inward and sought out a visual redesign that has been gradually implemented over the past two years.

Foundry Proposal Office Manager Rolf Danner inside Building 67, the original home for the Proposal Center.

Space for the Future

With help from DesignLab's The Studio, the team refreshed the original proposal rooms in B67 with a bright, bold color palette that makes a statement and helps the space feel more modern. They added computer-aided drawings of classic missions, and vintage photos of the building — the first on Lab — as a nod to JPL history.

There was much more to come. Even with the upgrades, the original proposal center was "bursting at the seams," Danner said.

The team earmarked 11 proposal rooms on the third floor of Building 301 for a thorough redesign. A local architectural firm designed and installed forward-looking spaces designed to last several decades.

"In the '90s, people wanted to pack technology into the rooms and that became obsolete really quickly," says Danner. "We wanted these rooms to be ready for the teams to walk *into* with technology they carry around."

Danner, who has been managing the Proposal Office for five years, based the redesign on feedback from fellow team members, the architect team, and his own experience on how best to serve proposal teams.

"I've spent many years in proposal rooms and have strong ideas on how to use them," Danner says, citing the importance of smart, practical features such as good lighting, reliable air conditioning, and a clean, comfortable environment.

"Some of the ideas sound so basic, but if you work long hours — and many of these rooms don't have windows — these are the things that start to matter," he says.

Design features in the new rooms include a floating ceiling; lights that can be dimmed and adjusted by color temperature; individual thermostat controls for each room; jump seats that fold up flat against the wall when a user stands up, which quickly creates more space; and power outlets near every seat.

Large, traditional conference tables in the center disappeared. Instead, the group opted for a collection of smaller tables that can be folded and stowed away, allowing team members to reconfigure the rooms to their needs.

Then, as always, there was the question of hard copies.

“Proposal teams still work with a lot of paper,” Danner says. “I wanted a lot of wall space where you can use push pins to put up different copies of your proposals. A traditional proposal room is plastered with paper all around to compare drafts.”

To accommodate that need, the walls are covered in soundsoak — a type of fabric-covered material designed to cut down noise from other rooms, and are conveniently pushpin-friendly — as well as magnetic whiteboards so teams can quickly switch between writing and affixing papers.

“All these little details [surface] when you work in a room for years — it drives you crazy,” says Danner with a laugh. “It was a tremendous collection of little things that led to the design.”

Four of the rooms are ready, while the remaining seven rooms — including a collaboration lounge — will be completed in the last project phase.

Near the end of 2022, the group hosted an open house to welcome JPLers into their new space and share more about the proposal process. Director Laurie Leshin also dropped in for a tour.

Danner hopes the new designs and upgraded spaces will inspire teams and help them tackle the workload.

“It’s all in the service of the success of the proposal team,” he says. “The new space is going to re-energize people to work together.”

One of those people is Richard Kidd, a technologist within the Analytical Chemistry & Materials Development group, who first used the space as his office to work on a discreet proposal as the Lab gradually reopened.

“I ran all of our proposal meetings from it,” Kidd says. “More recently, as more of the proposal team are on Lab and in the room, we have been running hybrid meetings pretty seamlessly. [We’ve been] shocked and pleasantly surprised at how well the hybrid setup — projector, screen wall controls, Meeting OWL — worked.”

The Foundry Proposal Office hosted an open house for JPLers in November 2022 to share more about their work and showcase the new spaces.

Master Practitioners

The Foundry Proposal Office supports principal investigators and their teams as they "cast all those brilliant ideas onto paper, or in these days, PDF files," says Danner.

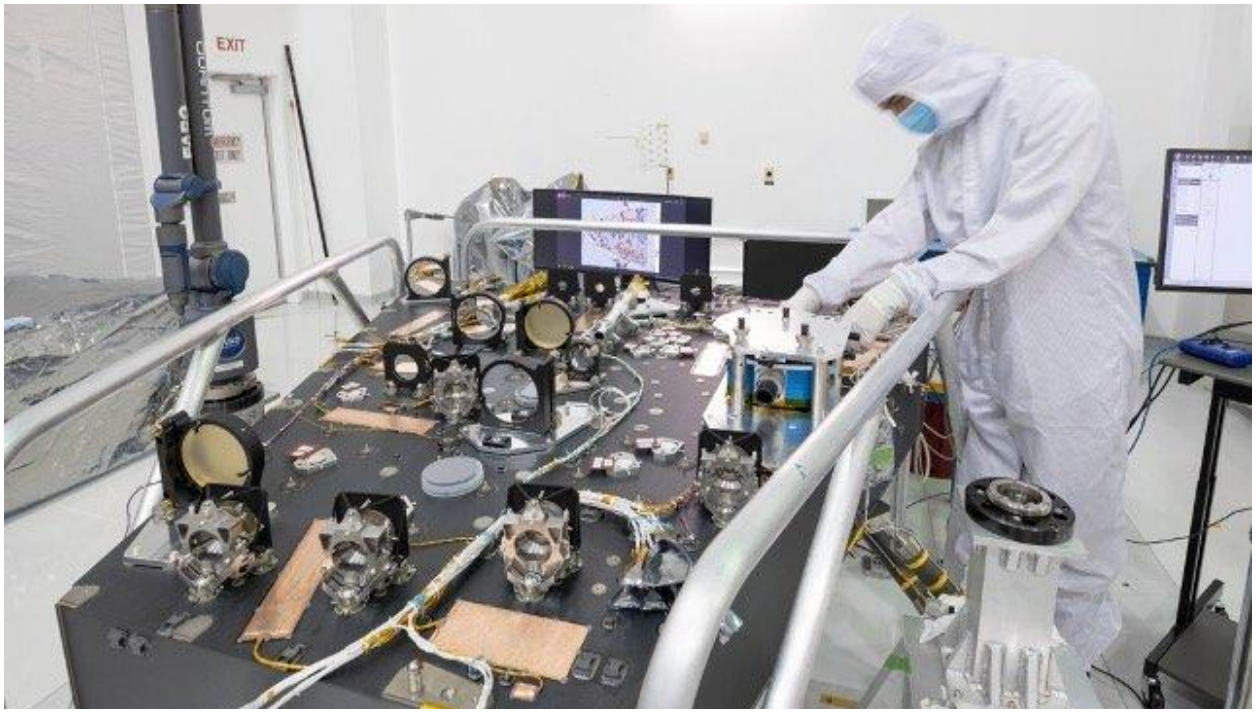
"If I could staple the principal investigator into the papers, that would be much easier," he adds with a laugh.

Since that technology hasn't been developed just yet, the Proposal Office instead supports proposal teams from three program offices: Earth Science, Planetary Science, and Astronomy & Astrophysics, and from individual researchers across JPL.

The Proposal Office streamlines a process of best practices that includes physical spaces, digital collaboration spaces, workflow tools, and a group of JPLers who are experts at crafting winning proposals.

"My staff are mostly master practitioners — people who are really good at what they're doing but also spend a significant amount of time coaching and training others," Danner says. "We're really the ones keeping track of what NASA wants. All proposals that JPL submits to NASA come through my office. We're seeing a lot of feedback. We can compare and ask, 'This idea, would that work?'"

Now, they have the ideal spaces to find the answers.



The optical bench of the Roman Coronagraph Instrument is shown here in Building 306's instrument highbay. ***Image Credit: PhotoLab***

Next Exoplanet Examiner Unmasked at JPL

By Taylor Hill

The Coronagraph Instrument aboard NASA's Nancy Grace Roman Telescope is in the midst of assembly at JPL, and scientists and engineers are getting their first glimpses of the flight-ready components coming together.

It's a moment that makes tangible the decades of work and research required to create a system of masks, prisms, detectors, and self-flexing mirrors that will work together to block out the light from distant stars — revealing the vanishingly small planets in orbit around them.

As a technology demonstration, the Coronagraph Instrument is designed to respond to the Astro2020 Decadal Report by validating the capabilities required to view, image, and study potentially habitable Earth-like planets.

"The Roman Coronagraph is a key stepping stone in enabling what will hopefully be some of the most compelling science of all time," said JPL Roman Space Telescope Project Scientist Jason Rhodes. "It proves out the technologies needed to create a coronagraph on a future mission capable of finding biosignatures on planets around Sun-like stars—our path on the quest to find life."

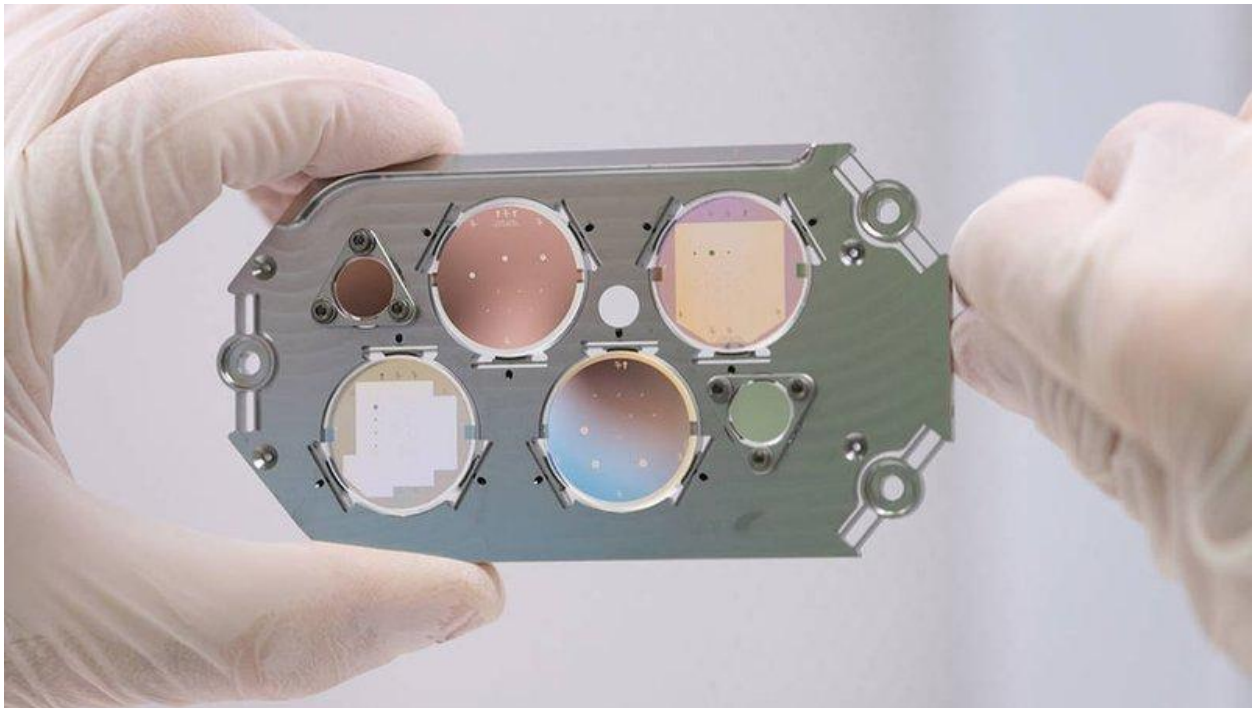
It's a trail JPL is uniquely positioned to blaze, thanks to the Lab's technical facilities, such as the Microdevices Lab; expertise in exoplanet detection; world-class engineering prowess; and historical knowledge dating back to Hubble's WFPC2 camera.

Instrumental Science

In case it needs to be repeated: It's really challenging to image a planet around a star. A star's photons — particles of light — vastly overpower any reflected photons from an orbiting planet that may reach a telescope.

Rhodes compares present-day exoplanet detection capabilities to viewing the glow of a firefly circling a lighthouse. The firefly gets lost in the glare of the lighthouse. Now, if the firefly is 20 feet from the lighthouse, imagine that your telescope is 1,500 miles from both.

"That's the exoplanet detection capabilities we currently have," Rhodes said. "But to see an Earth-like planet around a Sun-like star, we need to do 10,000 times better than that — basically replace that firefly with a single cell of bioluminescent algae."



The focal plane mask for the Roman Coronagraph Instrument, shown here, helps block starlight and reveal hidden planets. Each circular section contains multiple "masks" – developed at the Microdevices Lab (MDL). ***Image Credit: PhotoLab***

A 10,000-fold improvement is tough to achieve in one leap, so the Coronagraph Instrument team is hoping to demonstrate about a 1,000-fold improvement over current capabilities. That would allow the next great telescope – Nancy Grace Roman – to image a Jupiter-size planet, or large disks of dust and gas surrounding other stars.

From there, it would be a modest 10-fold leap to an instrument that could see planets the size of Earth. That will be a task for the 2030s or beyond, when the unnamed successor to Roman vaults into space.

The Coronagraph Instrument team plans to make the first, farthest leap by suppressing starlight in two ways.

First, the Microdevices Lab developed a series of coronagraph "masks"— less than a fraction of a millimeter across — to strategically block incoming light. Second, the team placed two flexible, or "deformable" mirrors inside the coronagraph. Capable of changing shape in response to conditions through the action of 2,300 pistons, the mirrors can make picometer-level adjustments in the instrument's

optics. Those adjustments should enable the instrument to correct automatically for spillover glare that escapes the masks.

Carrying the Torch

Instrument Technologist Vanessa Bailey started on the Roman Telescope in 2017, after spending her earlier career days searching for exoplanets through ground-based infrared telescopes.

“We are breaking new ground to attempt to capture exoplanets in visible light, and we’re searching for much fainter planets than what we see from the ground,” Bailey said. “We could possibly be the first to directly image a solar system-like object — whether that’s a Jupiter twin or the first images of dust and gas shrouding terrestrial zones around other stars.”

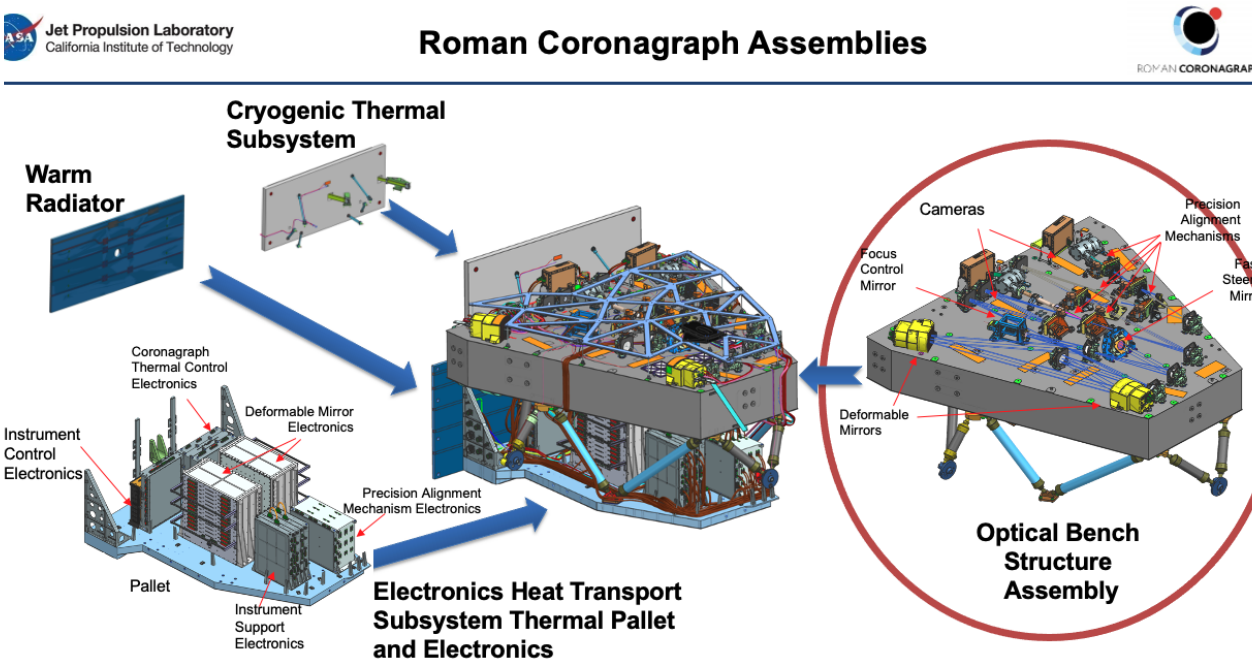
With the integration and testing teams stacking the Coronagraph Instrument’s 1.5-meter-wide optical bench atop the instrument electronics pallet, Bailey recalls the obstacles on the journey to assembly.

Working with optics manufacturer Xinetics to fabricate space-qualified deformable mirrors was a huge design and engineering hurdle, Bailey said.

“One design would perform well in a stable environment, but then you connect thousands of wires, shake it in a rocket, and then still require it to perform to incredibly high precision, it was a challenge,” Bailey said. “But we worked with them, and we were able to come up with new types of cabling and interfaces that would survive the rough transit to space, and now we’ll be able to use deformable mirrors to do adaptive optics in space for the first time ever.”

Looking back on the last five years, Bailey said the inherent challenges of the mission and her instrumental role on the team were the main reasons she chose to work at JPL.

“We do huge, ambitious projects that no one else can, and the fact that the project actively made many positions available for early-career scientists and engineers like myself is, I think, immensely important for the long-term health of the Lab,” Bailey said. “It’s how you make sure the next generation’s leaders are ready to fill those roles.”



A diagram showing the stacked assemblage of the Coronagraph Instrument's optical bench and the electronics pallet.

Coming Together to Separate

On the engineering side, Payload Development Group Supervisor Belinda Shreckengost views the Coronagraph Instrument's design and assembly as an ironic example of JPLers coming together to determine that separation is best — for the instrument's components, that is.

Shreckengost joined the team in 2018, with 13-plus years' experience as a thermal engineer. She had started her JPL career on the proposed Space Interferometry Mission (SIM) — a space-based optical interferometer canceled in 2008 due to budget cuts – and worked on OCO-2 and Mars 2020 as a thermal systems engineer.

"My heart has really been with optical instruments going back to my days working on SIM, and in my current role, it's basically taking the thermal systems experience I have gathered with the additional responsibilities managing the mechanical design for the Roman Coronagraph," Shreckengost said.

One of her earliest moves was to merge the thermal and mechanical teams so they could collaborate on design iterations, sit in meetings together, and work side-by-side.

"In a lot of missions, we treat thermal and mechanical separately," Shreckengost said. "When each is focusing on their separate discipline, it can sometimes be a struggle to converge on an instrument design that meets the scientific goals, within the spacecraft's constraints."

As a technology demonstration, the Coronagraph Instrument is constrained to mass, volume, and power allocations designated by the Roman Space Telescope team.

"You're trying to meet the risk requirements of a Class A mission, while being a Class D technology demonstration," Shreckengost said.

The combined mechanical and thermal teams quickly identified a need for some distance. After about eight months of design iterations and drawing board revisits, they produced a final design consisting of two sections stacked on top of each other. The upper tier comprises the optical bench, where the Roman Coronagraph's sensitive mirrors, filters, and masks can operate and search for exoplanets in a temperature-stable environment. The lower deck houses the avionics and electronics driving the mechanisms, and keeps waste heat away from the sensitive components above.

"It's a clever and compact design, optimized for the job it needs to do," Shreckengost said. "I'm really proud of this team and their exceptional work over the past five years from early concept to hardware implementation, to finishing our deliveries over the next month and sending off to the Integration and Test team to take over. It's just a job extraordinarily well done, and I'm privileged to be a part of it."

Historical Impetus, Future Findings

For Senior Research Scientist John Trauger, the idea for the Coronagraph Instrument was first planted when changes were needed on Hubble's WFPC camera back in 1993.

"We corrected an aberration on the primary mirror of the Hubble telescope with small corrective mirrors in our WFPC2 instrument — so the idea of optically correcting imperfections on a space telescope goes back that far," Trauger said.

After seeing the improved imagery capabilities of Hubble with the new camera in place, Trauger said the Lab realized that an adaptive optical system in space would be a game-changer for the field of astronomy.

“I’ve been pursuing the idea of a space coronagraph to directly image exoplanets since 2002,” Trauger said.

The technology wasn’t there, but that didn’t stop him. At JPL, Trauger says, you start with a vision — a science mission that’s not possible because the technology doesn’t yet exist — and then figure out execution.

“We develop the technology, propose the mission to NASA, justify the further development of the technology, and then demonstrate how it will enable new science,” Trauger said. “It’s something I think we do uniquely at JPL, and in my mind, the last two decades have been a journey to get to the point where it’s possible to see high-contrast images of exoplanets orbiting its star—and that’s what the Roman Coronagraph will do.”

The Roman Coronagraph passed its system integration review in 2022 and is on schedule, with the rest of the Nancy Grace Roman Space Telescope, for a 2027 launch. Once assembly is completed, the Coronagraph Instrument will be shipped to NASA’s Goddard Space Flight Center and incorporated into the Roman observatory.

Events

Von Karman Lecture - Perseverance: Two Years on Mars

Thursday, Feb. 16
7 to 8 p.m.

Watch on YouTube

The Perseverance Rover has changed the way we look at Mars. Perseverance is investigating Jezero Crater – a region of Mars where the ancient environment may have been favorable for microbial life – probing the Martian rocks for evidence of past life. The rover carries an entirely new subsystem to collect and prepare Martian rocks and sediment samples that includes a coring drill on its arm and a rack of titanium sample tubes in its chassis. Throughout its exploration of the region, Perseverance will collect promising samples, seal them in tubes and store them in its chassis until depositing them on the Martian surface for retrieval by a future mission. Members of the Mars 2020 team will talk about the past two years of operation and discovery.

Speaker: Sunanda Sharma, Postdoctoral Fellow, Mars 2020, NASA/JPL

Host: Nikki Wyrick, Office of Communications and Education, NASA/JPL

Co-host: Sarah Marcotte, Mars Public Engagement, NASA/JPL

JPL Family News

Retirees

The following JPL employees recently announced their retirements:

50+ Years:
Gail K. Robinson, Section 1000, 50 years

40+ Years:
Cynthia L. Kahn, Section 3000, 43 years
Flora Wilcox, Section 171A, 43 years

30+ Years:
Peter Kahn, Section 3100, 35 years
Sally Heapy, Section 1430, 34 years

20+ Years:
Alex Perez, Section 352H, 28 years
Mary Ann Hall, Section 8010, 27 years

Letters

I would like to thank the ERC for the lovely flowers that were sent to me after my wife's untimely death. I also wish to thank JPL colleagues for their kind words, generous gift and flowers, and I thank colleagues who attended her funeral on January 7. **-Charles Garner**

Passings

Passings must be submitted through Human Resources, which coordinates with the family of the deceased.

Maynard G. Hine died on Nov. 23, 2022 at the age of 89. He worked at JPL for 40 years, most recently in the Galileo project office.

Maynard contributed in a variety of capacities to projects and missions through most of JPL's history, starting with Sergeant and Corporal missile programs, and including Explorer, Surveyor, Mariner, Voyager, and Galileo.

He is survived by his son, Matthew.

Douglas James Mudgway passed away peacefully on December 20, 2022, at the age of 99 in Sonoma, California. He was born October 5, 1923, in Auckland, New Zealand and graduated from the University of New Zealand in 1945 with a physics and mathematics degree. His career included radar & guided missile development for the New Zealand & Australian governments. While working on radar instrumentation at the guided missile range in Woomera, Australia, he divided his time between laboratories there and at England's Royal Aircraft Establishment.

In 1962 he moved to Pasadena to work for Jet Propulsion Laboratory (JPL). At JPL, he was the Deep Space Tracking and Data Acquisition Manager of the Surveyor Moon landing spacecraft (1966), the Viking Mars Landers (1976) and for the Galileo Mission to Jupiter (1978-1991). He received several awards including two NASA Exceptional Service Medals for his contributions to the Viking and Galileo missions.

Douglas retired to his beloved wine country, Sonoma, California in 1991. He continued as an independent consultant to the DSN Office at JPL (1991-1997) while writing the historical record of DSN support for Galileo. He published two books on the history of deep space technology including: "Uplink-Downlink: A History of the NASA Deep Space Network from 1957-1997" (2002) and "Big Dish: Building America's Deep Space Connection to the Planets" (2005). He also authored an award-winning biography of deep space pioneer William H. Pickering (2007), former Director of JPL and fellow Kiwi. "Pickering" was selected by the American Institute of Aeronautics and Astronautics for its annual award for the best history manuscript dealing with the impact of space technology or science on society.

While enjoying his retirement in Sonoma, he continued his lifelong love of music by taking up the cello in his 80s and playing with the Santa Rosa Junior College Orchestra. At JPL he played guitar in a trio with several colleagues. He was a member of the Sierra Club and an avid sailor, navigating the seas in Southern California, the San Francisco Bay, Australia, and the Caribbean.

He is survived by his three adult children, David, Ross and Diana, and their spouses, seven grandchildren and two great grandchildren. He had a long, full life pursuing his passions. Douglas J Mudgway was the embodiment of "a life well lived ", that rare combination of a scholar, a gentleman, a musician, a wonderful father, and an inspiration to all whose path he crossed. His positive influence will long be felt by those who knew him.

Richard Joseph Spehalski died peacefully on Sunday, January 1st at the age of 87. Richard is survived by his wife of 62 years Nancy, sister Virginia Good, sons Stephen (wife Leah), Mark (wife Keri) and James (wife Jill), eleven grandchildren and three great grandchildren.

As a graduate from Cornell University in Mechanical Engineering, Richard dedicated his career to space exploration, joining Jet Propulsion Laboratories in 1959 and working on the Mariner, Viking, Voyager, Galileo, and Cassini programs over the span of 39 years. He was awarded NASA's highest honor, the Distinguished Service Medal and retired in 1998.

More information on his career can be found here:

https://www.jpl.nasa.gov/news/cassini-program-manager-richard-j-spehalski-to-retire