

Andrea Lauer

Designer, Inventor, and Artist



Janna Levin

*Claire Tow Professor of Physics and Astronomy at
Barnard College of Columbia University
Chair and Founding Director of the Science Studios at
Pioneer Works*

Lee Anderson (LA) *You are both storytellers, just through different mediums, and I'd love to discuss what storytelling is to each of you and how this ongoing collaboration has created an outlet for you both as storytellers.*

Andrea Lauer (AL) It starts with how Janna and I met. Janna was writing her book and I had an art studio in the same space, and one thing that became really true is that I often create work based on, or inspired by other people's ideas. And so Janna, in many ways is my muse. She'll talk about something and then I all of a sudden will start to visualize whatever she's talking about. And I think that happens at a pretty regular rate.

Anytime she's explaining something to me about her work, or what she's thinking around science or what she's seen or heard, I'm always going, "Oh, right!" And I'll get a visual flash in my mind that puts the pieces together with the vocabulary. And that's the

way I've been able to understand complex science when it comes to physics and things that I have no normal aptitude for.

I like to think that storytelling is about being able to evoke some sort of response in an individual that adds or enhances to what they already know. I try to think about the layers. That's very much the way I approach things. There are several layers into one design, whether it starts in history and has a little bit of the present embedded in it, then it has the future embedded. There are always different layers because I'm pretty sure that together they create a whole. Maybe not everyone accesses each layer, but then there's something for everyone within it.

Janna Levin (JL) To that point, Andrea's patches correlate with a

specific live event. And so I'll do an event on string theory, and Andrea and I will talk about it and then she'll draw the Calabi-Yau Manifold with the internal dimensions for a bandana. Then the patches corresponded to a series called Scientific Controversies. They're like puzzles, the patches. It's exactly what Andrea said; there might be something Victorian about them, and then there might be something about an eclipse in 1782, and then there's this sort of modern element to it. They're like puzzles; they're not just a pretty picture.

So in that sense, they are really narrative but very few people picking one up will know it. So we have one, for instance, "Are We Alone?" And it's very Soviet looking. It's so strikingly Soviet. There's something about the space race in it, something about

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modern understanding of planetary systems, and the question, “are we alone?” which is having a really massive explosion in modern times. Right now this has become a huge area of inquiry: exoplanets and life in the galaxy. So it’s probably something we should actually narrate for people (laughing).

What’s interesting for me working with Andrea is that it’s the same as understanding where your aptitude is, and that in a conversation with somebody else, they can stretch what you’re doing in a completely unpredicted way, a completely novel way that I couldn’t do myself in a million years. There’s something wonderful about that. My work is very solitary as a mathematical physicist. And certainly, as a writer, it’s extremely solitary. You can go two, three years without showing somebody a word of what you’ve been consumed with. And the idea of extending experientially, into another domain—it’s like another sense—was really something I’ve always wanted.

And it’s not an easy thing to find the person with whom you’re going to have that right synergy. It’s not something you can farm out. It’s not something you can hire an artist for and say, could you make this for me? Every time, it’s Andrea coming to me saying, “I have an idea.” Or I go to Andrea and say, “why don’t we do patches?” Bandanas, the same thing; it’s genuine collaboration. I think it’s really hard to find that rhythm with the right person.

Also, in my writing I’m very much going for the solar plexus. I’m not trying to get somebody pedagogically to understand string theory or the shape of space in a scientific way, I’m trying to get them to have like a

glimpse from the top of the peak for a second. I don’t need them to come down and say, “I can rephrase that” or “I can repeat it.” I just want them to have that moment of seeing the height. I think these collaborations are a way of having that as well,

where it just kind of hits you in the solar plexus.

LA You wrote somewhere that you described the experience of your office at Columbia being very different from your office at Pioneer



Scientific Controversies patches, Courtesy of Andrea Lauer and Janna Levin

Works and how it kind of activated a different creative lens. Maybe. I wonder if that was like, also a door for collaborations like this and how you work together?

JL Academia is so wonderful for people like me. It's this unbelievable gift to have such a phenomenon as academia. But it is very limiting in connections and crossovers, and there's not a whole lot of respect or appreciation for stepping outside of the academic ivory tower. Although it's changed over the past few years where there's less this sense of, "Wow, you've moved into the scary world outside of the ivory tower." And now it's kind of more like, "Wow, I really envy that you did that."

LA *Do you think there are more ways to create opportunities like that? So there could be more of this type of collaboration that you guys have*

created that is ongoing, and it's really self-nurturing in a way?

JL Pioneer Works is that opportunity, because I don't know of any other cultural institution anywhere in the world where science is a major pillar alongside art and music in this particular way. There are science centers, and there are art centers. So a lot of what happens is just because Andrea moved in as a resident for a while. You have to have that proximity; you have to be steeped in it and have the conversations for some natural friction to happen and to lead to something. And so I do want to bring in more scientists and residents. You have to be there and actually participate in the real life conversation.

LA *Andrea, you've done this really well, by plugging into these areas and being a fellow at institutions that really encourage that kind of multidisciplinary interaction.*

AL And that's the great thing about Pioneer Works, and it's not just Pioneer Works but it's what Janna brings to the table, and some of my other collaborators, is that when I work with people who are outside my own field, from totally different worlds, it tends to get the best work out of me. Because I have to do the research. I have to really dig deep inside and try

to understand where, at the core, it hits me, and how that translates both to my audience and then to an audience that's outside of my norm. And it starts to push me in different ways.

I never would have designed a patch, for example. That never would have occurred to me. It only occurred to me because after talking about this idea of Scientific Controversies before it really even existed we realized, "Oh my god, it's like going up into space and coming back down! It's like a full mission!"

I do a lot of one offs, because I design specifically for experience. And that's what really inspires me is to focus on something that I wouldn't normally have access to. And the way I get to experience it is to find my own access, and to find a way for me to be a part of it. So like she says, I bring a lot of things to pioneer works, or to Janna because I think "I want in. I don't know how, and I don't know what my value is, but I'm going to find my value within the collaboration of outside thinking." Then all of a sudden, I get to have this amazing conversation about string theory, and then I have to find what I think is compelling about it as an artist.

LA *I want to get your thoughts on fashion, because you've chosen the jumpsuit, the spacesuit, the patches, the bandanas—all things that we wear. How do you see fashion as a storytelling device, and why does that medium fit your collaboration in so many ways?*

JL I wear the jumpsuit almost every Sci Con [Scientific Controversies] unless it's really too hot. And it's part of the signature of the series. Everyone sees me in this



NOVA suit development, Courtesy of Andrea Lauer and Janna Levin



jumpsuit, and I have the patches all over—different ones on different jumpsuits—but it’s become part of the signature identity of the series, the jumpsuit with the patches.

AL The things I tend to work in, especially if you think about jumpsuits and why I’ve gone down that path, is that I think that they’re a deeply universal garment. They are essentially a canvas for the body, and the green board equivalent of the body. And you can put anything on them—accentuate, enhance or distort the body. There are so many things that they allow you to do. I think they are the uniform of choice. And it’s a uniform that works across many diverse forms and different types of people.

In terms of the other accoutrements and the reason why I tend to work in clothing and accessories is that you are what you wear, and you present to the world a part of who you are every moment you walk out your door; you have an audience, whether you want to or not.

I think it’s really important to carry around what I consider talismans of the things that I value and hold close. I like to make things that have value and that capture memory, that capture an experience. They are often things that are a takeaway of an action so that it can live on. They’re my versions of time capsules, but they’re all my secret signature. I like that I can put out little pieces of magic into the world that someone will either unlock or not unlock, but everyone will do it in a different way.

I’m also fascinated by the history

of the object itself. For example, there’s some space jewelry we started making. It all comes from this piece of work that I did around the 19th century *châtelaine*, which is essentially the first female tool belt.

Those are interesting because I am often curious about how to retain something that has gone away in our society, something like the *châtelaine*,

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which has virtually disappeared, but is actually a very important part of our history. I like to bring things back into fashion through a new lens. So I’m constantly looking back at different things. Like patches: at the time when we started doing patches,



they weren’t very popular; patches have become extremely popular since we started doing them. I mean, that’s just luck. But the same thing, we started doing bandanas before for COVID.

JL The idea was like going out into the field as a scientist; it’s like a field scarf. If you’re Penrose, you’re going into the world of mathematics, you

have to have your own field scarf. If you’re a string theorist, you need a different one.

AL So all of these elements are actually about action. It’s about going to do something or having done something, and to activate clothing and accessories is just a thrilling opportunity to tell your story.

JL There is something about bringing art into life that is something that’s always spoken to me and frustrated me about contemporary art. I love the idea that we used to make art to eat off of, our plates, or to sit on, or to wipe our hands with. There was something about making those things beautiful that is almost completely gone.

We buy IKEA. We buy clothes from H&M. There’s a lack of that daily relationship with a beautiful object. What we usually think of as valuable is something like a diamond or gold—which by the way is made in neutron star collisions—That’s a whole other story. Gold is only made when two neutron stars collide.

Every ounce of gold on the earth was made in some crazy event like that. And so the psychology of thinking of it as a monetary thing...all of that I find terribly disappointing.

And so there is something about wearing art, and using it—there's something about it being a part of your daily experience that I find really appeals to me, and that we would all probably want more of if we had access to it.

LA Both of those answers also speak to the role that science can play in our lives. It's engaging, and you can kind of observe it like the Hubble telescope images, which are just such eye candy. How do you engage people through the SciCon programming and artifacts?

JL I was really surprised when people came to our events. Here we are in this total art space in super hipster Brooklyn. It's hard to get to, there's no train out here. You have to make an effort to come out. We didn't think anyone would really be interested. We didn't know if we'd have an audience...we just did what we wanted to do.

And the thing that amazed me about the audience that came out was that there was this sense of wanting a different way of interpreting being a human being in the world. And I feel that way, but I didn't know other people would also feel that way. So that's part of the whole idea. It's not just this fascinating intellectual journey, and then you go home and stop thinking about it.

I've bumped into people two weeks after an event on the sidewalk, and they're talking about SciCon. It becomes part of their daily life,

the way that the patch can become part of their daily wardrobe. And it changes their internal dialogue.

AL It's like a little piece of delight. Educational delight, they can take home with them.

JL And people will be struggling with the concept. It's not easy. We don't make it easy. At every SciCon,

“The more intensely you impose one constraint...The world opens up for you in completely unpredictable ways.”

if it works, I have what I call “the hard stuff,” which is when I get to the point where even my guests just don't know what we're talking about. So it's tough. And so it's not that people are going to walk away educated, it's more that they're going to walk away having a kind of intellectual version of the experience somebody has when they see art. It's incomplete understanding. It's not immediately consumable, and it just kind of haunts them for a while.

LA In these collaborations, you're getting out of your own mediums and having to do research to maybe understand what is possible in that work. How has that informed your own practices or your own individual work after going back from it?

AL I have to say, almost everything I do, I don't know how to do. I cannot tell you how many times I walk into my studio when I have an idea and I'm like, “I don't even know where to begin.” Even making masks. Yes, I know how to sew. And yes, I'm a

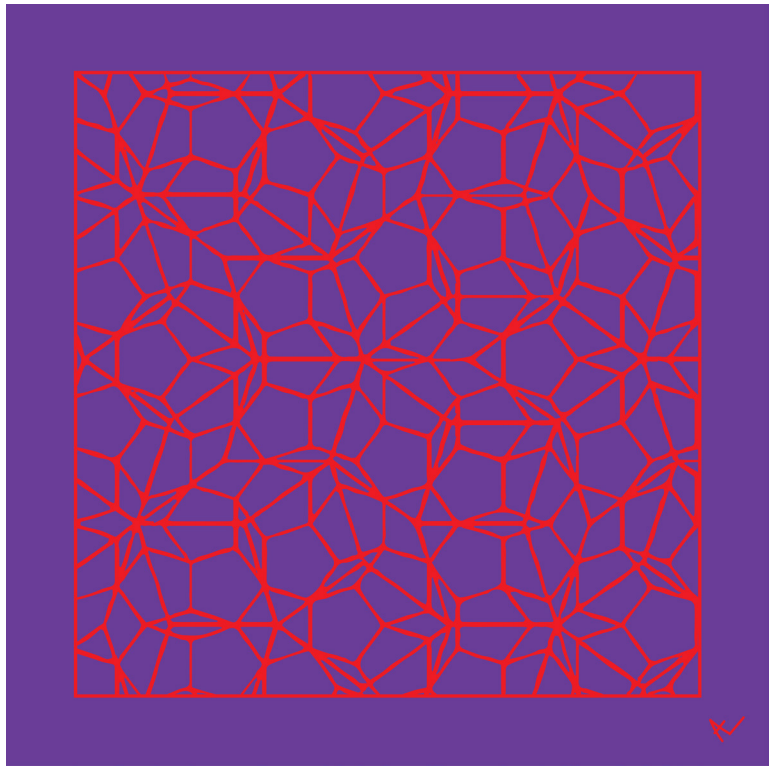
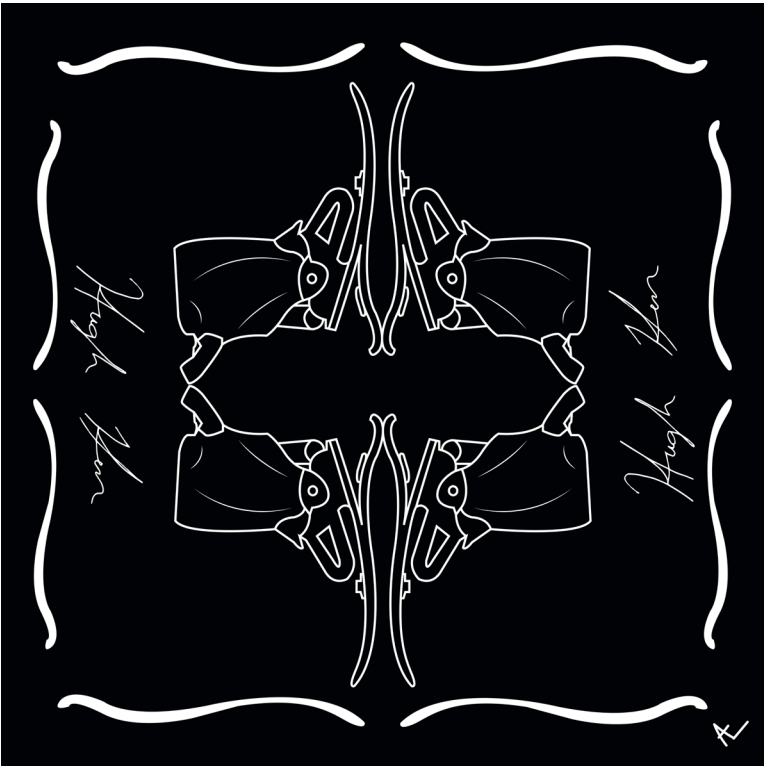
pattern maker. But but then you just go, okay, well, why not? I didn't know how to gold leaf. But then I learned how to gold leaf. I didn't know how to do graphic design. But then I learned how to do graphic design.

JL Andrea does a lot more of the technology things than sometimes I even know. I'll see something she's been working on for months—like

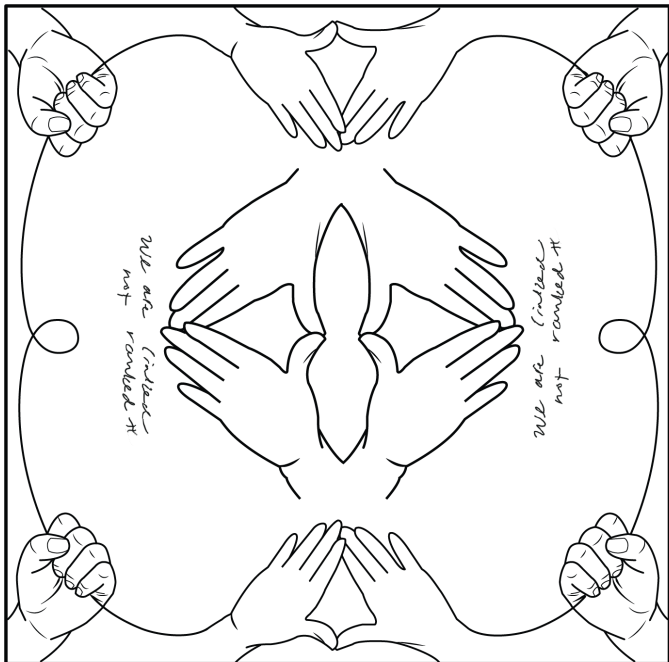
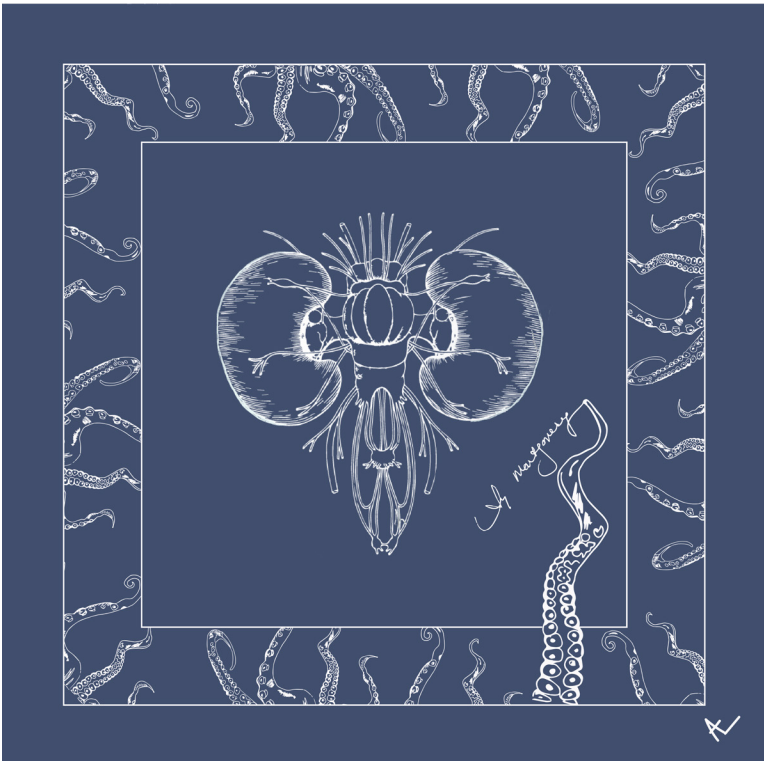
bio-plastics—and it's like, how do you know how to do that? Or it's some weird Arduino coated chips and it's like, how did you figure that out? You just kind of throw yourself in the deep end and start paddling.

AL Every project is just research. I'm doing constant research. I'm more of a researcher in a way than an artist. I just say, I'm going to figure out how to do this. And sometimes it turns out totally different than I imagined it would. Like working with augmented reality, for example. I didn't know how that was going to happen.

I had to talk to a bunch of people to get some help, and Some things I had to figure out myself. I had to use Unity and Vuforia and had no idea what those things were when I initially started, but I had a vision of what I needed it to look like. So I had to knock on a bunch of people's doors and figure out how to put things together that don't normally go together. That's a big part of what I do: I'm taking things from different



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areas and I'm bringing them together in one place.

JL With the eclipse jumpsuit, the design of the fabric is very old looking. It's an absolute reference to a specific image. And yet it's an AR piece so that you can hold your phone to it and watch the eclipse happen. It's the tension between the past, a lot of times Victorian, and then totally beyond where we are now.

One of the things that I really admire about Andrea's work is a lot of times people will cut their losses and say "well, I can do it this other way. It's not what I really wanted, but it's good enough." And I've never seen Andrea do that. If it takes you two more years, and eight other conversations about new technology, you'll just hold out until it's ready.

LA *There's so much of a scientific process in that, and what you're describing in the research. I think a lot of art happens through absorbing experiences and stimuli. And then you go back out and you create*

"You have to have that proximity; you have to be steeped in it and have the conversations for some natural friction to happen and to lead to something."

something, but there's not necessarily a direct line. But in the design process you're describing it's so much about researching and really understanding a subject matter or a set of ideas and then turning that into a product or an artifact.

AL All of the work that Janna and I are doing together, I do definitely treat it as an artifact. It's something that should tell a story, that should encapsulate memory, and should last. It has all of those features in it. So it's not just a casual thought. We've put so much into it. Our friendship is in it, and our relationship with colleagues goes into it. All these things are in there.

They sent a Golden record out in space, so what if any one of these things could also be sent out into

space? Or maybe one day they'll be found embedded deep in the earth here. I don't know. The eclipse suit also is made out of 95% biodegradable fabric, so it's all plastic bottles from Haiti with the exception of 5% cotton. Not only am I looking at what the end result is, I'm looking at the materials from the ground up. That's something that fashion is starting to do, but we have to keep pushing it. And I try to incorporate it into the design work that we do here at Pioneer Works.

JL Fashion often feels these days to be much more about assigning your identity with a bigger group, and there's very little originality in that. There are kind of box categories that you can choose to fit into, and that's it. And there's something about having all of this ephemera, so that even if I get a jumpsuit that Andrea's made 20 of, mine is going to be utterly unique because of the particular patches I put on it, or the belt or châtelaine. The entire garment is absolutely unique and bespoke in that sense.

I think people really do want to strongly declare which of these boxes they fit in, which group they are part of. And that's actually taken over the mass marketing of fashion and mass production in other countries for lower prices.

So there's something about going back to having this very special châtelaine that is the absolute only one of its kind. And I can wear it, it's not something that goes on in a frame on my



Maria Popova, Andrea Lauer and Janna Levin at the Intergalactic Pop-Up shop for Risen Division at The Pioneer Works Science Studio. Courtesy of Andrea Lauer and Janna Levin



wall that nobody will ever see. I think that's something that people really crave.

LA *You described science as being intrinsic to culture, as fashion is, and you seem to be really successful at connecting people to science through storytelling and through these collaborations where people just have an entry point that isn't as intimidating. Can you speak to that a little bit and how you see science as a tool or a way to strengthen culture or tell a story?*

JL For me, it's never been so separate. The discomfort was having to join a physics department that was so accordant in this one way. And that wasn't how I thought about myself going into this. It just wasn't my consciousness of the experience of being a physicist or thinking about math. My intuitive relationship with it had these other layers, that Andrea describes, where a connection to history, or something totally futuristic you're thinking that nobody's thought of, or going from a vague idea to the concreteness of the calculation, and the rigidity of having to make a technology that works. There's something similar about that—you have to make a calculation that works.

And, I've always been obsessed with literature and writing as an art object. The written word, even prose, is just...the impact and power of the written word for me was always huge. If other people found a connection with it, what a gift. But it's not as though I sat back from a really rigid physics department and thought to myself, how do I do this? It was kind of the opposite: how do I get back to that? How do I get back to that sensation of hearing poetry and words, of thinking these really complex thoughts, of respecting the rigidity of the limits of math.

I have this idea that when you squeeze something in one direction, it's like a

balloon, it expands on the other. So the more intensely you impose one constraint that becomes like [sound of a balloon expanding]. The world opens up for you in completely unpredictable ways. So these are just things that were always how I felt. I just didn't know anybody else would find solace in it, too.



LINKS

Andrea Lauer
Risen Division
Janna Levin
Pioneer Works
/ Broadcast



"Sounds of Earth". Credit: NASA, 1977

