

## Liz Lerman Dance Exchange explores the universe in 'The Matter of Origins'

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The physicists have arrived in the rehearsal studio, slightly rumpled, sharp-eyed. They're quick to pick up on the rules.

"Take your shoes off," one chides another.

Hands on hips, they stand expectantly in their socks. Now the dance can begin.

"We were thinking it'd be fun to just throw you into the deep end and do a little partnering," announces Liz Lerman, the veteran choreographer of ideas, who has spent three years piecing together an unlikely alliance of science and art, brain and body, called "The Matter of Origins."

A meditation on physics and life, the dance-theater work was inspired by Lerman's visit to the particle-accelerating Large Hadron Collider at the CERN laboratory near Geneva. It will premiere Friday at the Clarice Smith Performing Arts Center at the University of Maryland. The production, which will be repeated next Sunday, is part performance by her dance company, the Liz Lerman Dance Exchange, part tea party (the old-fashioned kind, with cake) and part floor show.

The three physicists -- all professors at Maryland, including Drew Baden, chairman of the physics department -- are part of the floor show.

"But don't worry," Lerman tells them soothingly. "We have zero expectations of you."

What are they doing here? What is *she* doing here? For that matter, what is any one of us doing here? These and other weighty questions might or might not be answered in this work. But Lerman is not typically after answers. It's the asking that moves her.

"There are some enduring questions that are dogging me," she says in an interview. "How do we really sustain ourselves as human beings? What makes us able to get through the worst of it? I am really interested in what makes us able to get up every day and try again. And I think the nature of these particular scientists -- their inquiry, passion, commitment, their poetic imagery -- in some ways mirrors my own. It mirrors an artist's path."

Lerman has cut herself a large piece of the existential pie here -- not to mention that she's placing her methods on the same plane as those of the scientific elite -- and she knows it. She's a little fearful that this will be an overreach. It's been a few years since Lerman, 62, was in college (the longtime Washingtonian was a Maryland grad), and she acknowledges that science was never her strength. But the field intrigues her; in 2006, she created "Ferocious Beauty: Genome," prompted by genetic research that is changing everything from what we eat to who gets born.

Now that she's latched onto particle physics and the Big Bang, she imagines the eyeball-rolling: "'Oh my God, now she's talking about the universe.'" Lerman pauses. "But it actually doesn't feel big to me. It feels more personal."

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The first half of the work will be performed in the Kay Theatre, with Lerman's dancers appearing on a stage in front of a curved set. Video projections will take the audience into the CERN lab and aboard the Hubble Space Telescope while the dancers sweep around suggesting principles of momentum, symmetry and, yes, even collisions. It would be wrong to say that, for Lerman and her 11 dancers, this is the easy part -- translating equations and outcomes into movement with any kind of clarity has been a challenge. But using the body is familiar ground.

Then comes the unfamiliar. The experiment. In the work's second half, the audience will be ushered into one of three rooms and seated at a number of tables. The dancers and other local performers will serve them tea and chocolate cake. Each table will have one "provocateur," a physicist, perhaps, or an

actor, who has been rehearsed in the art of getting a conversation going.

Lerman, with her frizzy burst of hair spilling out of its topknot, wearing large hoop earrings and a loose tunic over leggings, is one of the modern-dance world's eternal flower children. She was an early proponent of talking while dancing (back in the 1970s) and of making room in her works for non-dancers, and she has made a decades-long practice of including the elderly. Two of her dancers in this piece are in their 70s. She loves this other break-down-the-barriers concept, getting her audience to talk about what it has just seen, taking the ideas from the stage into their imagination. She's incorporated it into other works, sometimes interrupting a performance by bringing the lights up and having one of the dancers field questions.

The tearooms in "The Matter of Origins" push this notion further than Lerman has ever gone. They were inspired by the refreshments served to Robert Oppenheimer and Niels Bohr at Los Alamos by a woman named Edith Warner, who converted her home into a tearoom and often fed the scientists chocolate cake when they took a break from building the atomic bomb. In front of her, they spoke of their project as "the gadget." Lerman's audience will be eating cake made from Warner's recipe.

Each table will be equipped with an iPad, loaded with suggestions for conversation-starters. They're a great prop, Lerman enthuses -- the ultimate modern-day gadget. "And if you want to sit in condemnation of those scientists at Los Alamos," she adds, "look at *us*. We can't keep our hands off it.

"I know it's not going to kill people. The iPad is not the bomb. But our willingness to let technology change the whole way we structure our lives is very compelling."

Especially for someone who owes her existence to the bomb. At least, that's what her father used to tell her, and it's perhaps why the prickly moral questions raised by atom-splitting are a driving force of this production. And why Lerman wants so much to get people talking about them. Because measured against the lives lost when the bombs were dropped on Japan are those who were spared by the war's end -- and the resulting generation of

baby boomers. During World War II, Lerman's father was in the Army, stationed in Italy. After celebrating the end of the war there, he was told his division was bound for the Pacific.

"They all believed they were going to be killed," Lerman says. "And then the bomb was dropped, and he came home. . . . I remember him saying to me, 'You're here because of the bomb.' "

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Murky morality is fruitful turf for an artist. But physics?

"It's incredibly dense material," says Benjamin Wegman, one of the dancers who accompanied Lerman on her trip to Switzerland, who describes the immense scale of the CERN collider and the whole complex there as "like you're in a Will Smith science fiction movie." After all the thinking and discussing and rehearsing, though, he says he's come to appreciate what he calls "the beauty" of physics.

"We see it as very dry, basic math," Wegman says, but for physicists, the math is a language. "The math is the purest form that they can understand things in. And it's like the world is just a translation for all these things they're thinking."

Which returns us to the three dancing physicists: Drew Baden, Bill Dorland, who is also a visiting professor at Oxford University, and Christopher Monroe. God knows *what* they're thinking now, as their partners lean against them and they promenade slowly around, brows furrowed as if they're solving equations in their heads. Then comes a tango step -- not too tricky, they're told, just left, right, cross -- and the women spin away to do a little solo.

"Your job is just to watch," says Keith Thompson, one of Lerman's dancers, who has paired up with Wegman to demonstrate the steps. The professors regard the women's solos with somber concentration.

Their performance, taking place in the tearooms just after the audience has been seated at the tables, will be brief. (Three rooms, one physicist paired with a female dancer per room.) But the scientists are full of questions: "How do we rejoin?" "What do we do

with our faces?" "Do we make eye contact?" "How long are we in the room?" "How much of that are we walking and how much sitting?" This last question stumps Lerman. She thinks in terms of musical phrases, not minutes.

Afterward, Baden is asked how he liked the dancing. "It was all right," he says with an agreeable shrug. "I don't understand it, though -- what I'm trying to accomplish."

Join the club! Understanding is a relative concept here. The rehearsal progresses to a section on dark matter. How do you express that in dance? Lerman asks the physicists for suggestions.

"We see things where there's no anchor and yet there's action, and we don't know why," Dorland says. Now that he's instructing rather than dancing, he's cheerful, upbeat, with a hank of blond hair falling into his eyes. "Maybe if you establish some kind of motion that involves multiple people, with something in the middle, and then it's missing, and the action continues."

O-kay, goes the roomful of dancers. They get busy improvising. Is it like bumping into a table in the dark? Like something grabbing you, and then letting go? Bodies spin, extended feet are yanked and released. There are many varieties of leapus interruptus.

The scientists take another stab at it. Dark matter makes up most of the mass in the galaxies, they explain. But there's also dark energy, causing the universe to *expand* and accelerate. So here's the upshot, despite  $E=mc^2$ , despite Einstein and decades of chalkboard theorizing and multinational technology and all the new discoveries:

"About 75 percent of the universe is mysterious," Baden says.

Ah, Lerman says, breaking into a smile. "The mysterious we can do."