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ideas

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Eureka, free with The Times on Thursday

Maths and art? Go figure

Why is David Lynch making robots dance? Tom Whipple met him

Inside a large white egg, itself inside a large white cylinder, robots dance. Partly sweet, partly sinister, they are, also in part, an experiment in human-computer interaction. But their enclosure is an experiment in a different interaction, between what many assume are equally different species: mathematicians and artists.

The robots are designed by a mathematician. Their habitat is designed by David Lynch. This is the Cartier Foundation's new project, *Mathematics: A Beautiful Elsewhere*, pictured below. And it is intended to show how art and maths are not in opposition. Walk around the outside of the cylinder, though, and there is a small paragraph typed on the otherwise blank curve. It implies that even in an art exhibition dedicated to mathematics, all is not entirely harmonious between the two cultures.

"The mountains in the film," it reads, referring to a projection playing next door, "are said to be 10^7cm. In reality, the mountains on Earth are closer to 10^6cm but I just felt 7 was so nice and lucky that it had to be 7." It is signed "David Lynch". For the record, anyone climbing a 10^7cm mountain would not be lucky so much, as in space.

On the second floor, a fair bit more than 10^2cm (a metre) — but a lot less than 10^3cm (ten metres) — above the exhibition, is Lynch himself. Dressed in a dirty blue boiler suit, forming a thoughtful peak with his blackened fingernails, he is everything you would want from the director who gave us *Twin Peaks* and *Blue Velvet*. What he is not, though, is a mathematician. Why is he here? Why do Fields Medallists — the mathematical equivalent of Nobel prize-winners — need artists to showcase

research? And does an experiment in artificial intelligence really require rubbery skulls? He smiles. "Sometimes something's great. A diamond is great, say . . ."

If, at this point, you think that Lynch — a 65-year-old who has just made an electronica album called *Crazy Clown Time* — is boring enough to call mathematics a diamond in the rough, you haven't been following his career. "A diamond is great," he continues. "But if you throw it into sick, it gets lost." He sits back, pleased. Maths is a jewel hidden in vomit; art cleans up the sick.

Mathematical art is nothing new: think of fractals on teenagers' bedroom walls. Nor is there anything unusual in art that tries to explain maths. This exhibition, however, is neither. Over two floors, and

four rooms, the idea is to show the beauty of maths as a discipline, and the emotions that mathematicians feel practising it.

So it is about aesthetics rather than formulae, problem-solving rather than problems (the Japanese film-maker and actor Takeshi Kitano has created an exhibit in which the integers can be combined, in order, to produce 2011) and mathematical beauty rather than confusion.
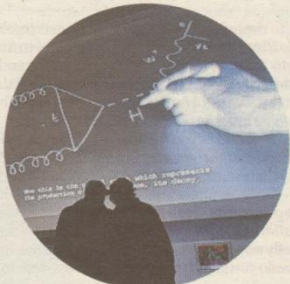
Don Zagier is one of the mathematicians who has been helping Lynch. "This exhibition is not a collaboration between maths and art, it is about maths as one of the arts," he says. "If it was a photography exhibition you wouldn't say it combines photography and art. It would just be art. Maths is not always visual though, and so to show it as visual beauty requires artists."

Zagier is one of the exhibitions; and very visual he is too. Part of a short film of mathe-

maticians describing their work, he appears in the basement, in a rolling collection of interviews mainly with men, mainly with interesting facial hair. "You're engaged in battle: between one person and the truths of nature," he says, through his faintly Amish beard. Alain Connes (neat beard, lively eyebrows), continues: "Most facts which are true are not provable," he says. Then there's Cédric Villani (no beard, lovely cravat), who describes fat triangles and lazy gases. "One day," he proclaims suddenly, staring wide-eyed, "triangles caught up with me." The passion is evident, but not everything else is.

In the Cartier Foundation, the Parisian art world looks on. Cédric Villani looks back. I'm not sure either entirely understands the other, but they're having fun trying.
Mathematics: A Beautiful Elsewhere runs until March 18 at Fondation Cartier, Paris. fondation.cartier.com