SLATE: What other Mars rover missions have you worked with?

BAEZ: I personally was fortunate to be a part of all the rovers on Mars right now, starting with Sojourner in 1996, followed by Spirit and Opportunity and now Curiosity.

An awesome program, it's great to have these JPL, in-house built, robotic missions with the rovers.

They take a personality of their own. I mean, we name them.

Folks are able to follow them and what they're doing in this day and age of technology you can jump on the web and figure out what they're doing right now. It's awesome, the next best thing is really having humans on Mars.

SLATE: Can you describe the Curiosity rover?

BAEZ: Basically this thing's a Transformer. It starts as a pancake and opens up and you got six wheels, you have a mast,

you have all kinds of protuberances coming out of it and it's all got to work right the first time.

It's got to survive a rocket launch and it's got to get sky-hooked onto the surface of Mars.

You've got to think of MSL as more than just a rover. What folks are seeing now, if you go out to the launch pad,
and within the payload fairing is what looks like a flying saucer.

I mean, it literally looks like what a science fiction flying saucer looks like.

And within that is the cruise stage and then the aeroshells and the lander, or the rover,

and not only that, but its descent stage.

And the cruise stage and descent stage are propulsive, they've got to be able to steer or stop and so forth.

They're loaded with fuel, they have rocket engines on them, just like the Atlas rocket does but on a smaller scale,

so there is quite a bit of complexity when you see all that put together.

It starts out as a 4,000-pound payload and by the time we're done with it, the rover's only 900 kilograms, about 1,800 pounds.

So over half of that mass is stuff that is required just to get it from the moment that Atlas releases it to landing on Mars.

SLATE: Is it intimidating to work with that kind of complexity?

No, absolutely not. It's awesome, it's cool. That's what engineers love to do.

How does this mission compare to other planetary missions?

They all have their unique challenges, but I think that this one is cool in that fact that it's a rover. It's big.
Some people say it's the size of a Mini. No, I stood next to it.

It's bigger than a Mini, it's more like the smaller version of the Hummer.

I mean, the wheelbase is just, wide, and this thing has a mast that's seven foot tall. So it's, it's big and it's very cool.

SLATE: How does Curiosity's size impact planning?

BAEZ: MSL, because it's large, it needs a different kind of power source.

We're using a nuclear power source for this one and when you do that it adds a bit of complexity because of the safety issues with it.

NASA really takes the initiative and almost over-reacts.

We bring in the DOE and other agencies that are used to handling this type of material and now we put in a lot of safeguards to make sure that the material is first kept and safeguarded well and that the mission is bound to be perfect in the way that it launches so that we don't have a release or have people panicked.

The way the RTG is encased, there's no harm.

This thing is, it's in a safe for all intents and purposes and we really do take that extra step in ensuring that this material is safeguarded and won't harm the planet.
SLATE: What is your prediction for the Curiosity mission?

BAEZ: I bet you there's going to be some knockout science, some great pictures and a great experience.