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Science alone cannot address this issue: An interview with Michael Mann (Part II)

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This is the second installment of an interview with Dr. Michael E. Mann, an interview continuing our [series on education for climate neutrality](#). Mann is a full professor of geosciences, director of Penn State's Earth Systems Science Center, the author of [The Hockey Stick and the Climate Wars](#) and co-author with Lee Kump of [Dire Predictions](#), and the co-recipient of the 2007 Nobel Prize for his contributions to the [Intergovernmental Panel on Climate Change](#). He is also a prominent university and public science and climate change educator and communicator.

As we've noted before, sustainability education has become almost inextricably linked to climate change. In fact, since we started the series, the most recent [Penn State Strategic Plan](#) incorporates both climate change and sustainability as key components. In this series, [we started with two questions](#): *Should we have education for climate neutrality? What sort of ethical or political orientations get smuggled in or nudged out?* In this interview, Mann answers both of those question by addressing the political and social nature of science and science education, the role of science and critical thinking in a democracy, fossil fuel research, investment, and divestment, academic freedom, the Papal Encyclical [Laudato Si](#), and other issues. The interview ranges far. The [first half of the interview](#) was posted last week. You can also read a more heavily edited version of this interview in [Reports of the National Center for Science Education, 36 \(1\)](#).

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Peter Buckland: So I want to turn this a little bit and put you a little bit on the spot. We are at Penn State, a Research I university that is invested in fossil fuels. And you work in an area that calls that economy into question pretty directly. I don't think you've been shy about that.

Michael Mann: No.

PB: So what are your thoughts on what a university can do at this time that is so invested in fossil fuel and looking to the future?

MM: That's a great question. There's a tension there between academic freedom, faculty members, and academic disciplines to pursue sometimes unpopular ideas. It cuts both ways. A university is in a difficult

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position being an arbiter of what's fair game and what isn't. It is a reasonable position for an academic institution to say, "We welcome study as long as it's in legitimate discourse and legitimate debate." And that can sometimes be difficult to call. And sometimes someone steps over the line.

I am required as a faculty member to file a [conflict of interest](#) disclosure every year. It is pursued and looked into. What are your sources of funding? What other affiliations do you have? Is there some conflict between those and the perspective that you have and are communicating to others in the academic environment? There are rules and if there are conflicts of interest universities are supposed to do their due diligence and investigate those conflicts of interest.

This is a matter that's come up recently. A prominent climate change "skeptic," a contrarian named Willie Soon, [did not disclose his funding sources in several of his publications](#). He's affiliated with the Smithsonian which is not a public institution but it's answerable to the public the way other large institutions like it are. There are rules. There are guidelines.

So if I was taking money from a private foundation that had a clear policy stake or policy interest in some particular form of climate mitigation like solar power and I was out there saying that the real solution is solar above everything else, then it would be reasonable to ask if there is a conflict of interest there. More often, in fact almost exclusively, the conflicts of interest end up appearing on the other side because there is an asymmetry here. Follow the money. What are the largest and most powerful corporations and industry in the world? The fossil fuel industry.

PB: You tend to eschew taking a position on any one policy solution. But I wonder what you think of divestment from fossil fuels by colleges and universities.

MM: I'm not afraid to say that I support it. I do recognize the *Realpolitik* of that discussion is context dependent. It's easy for a small private school like [Unity College in Maine](#) to do that. It's a completely different game when you are talking about an institution like Penn State which has diverse sources of funding and has a history of collaboration with fossil fuel interests. Obviously there is more of a hurdle at an institution like that. I still think it's the right thing to do. I think it would be great if Penn State would do that. I recognize fully the challenges.

PB: You're in the College of Earth and Mineral Sciences where is is front and center.

MM: We have petroleum engineers. My guess is that if I were to try to channel administration that they are supporting a wide array of academic research here ranging from people like me studying the very dangerous impacts of climate change and by its nature studying the dangerous implications of our continued reliance on fossil fuels. I would guess that there are petroleum engineers studying how to more efficiently extract petroleum. And maybe the university thinks that it's better to be involved in that discussion than not. We are going to let that debate take place.

PB: Resilience through a diversified portfolio?

MM: Right. But that doesn't always work.

One can argue that when it comes to the future of civilization there might not be an equal argument for a continued reliance on fossil fuel, the very behavior that's degrading the planet. I think it's difficult for a university, much less a large and diversified state university with diverse alumni and diverse contributors and donors. My guess is that the administrators would tell you they're doing the best they can.

PB: It sounds like you understand, like you're sympathetic to that position. But it should still change.

MM: Exactly. Absolutely. I'm not going to demonize the administrators and faculty who hold a different perspective because there is an honest difference of opinion to be had. There are dishonest differences of opinion and there are honest differences. Arguably academia is where that plays out.

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PB: Elsewhere, [you've written on the Pope Francis's Encyclical, *Laudato Si*](#). What kind of opportunity or role do you think there is for in our education about climate change?

MM: I think a huge role frankly. It's way too easy for us to siphon issues like climate change into siloes that make it only a scientific debate or an economic debate about cost-benefit analysis. And that's very problematic to me because it's a moral and ethical issue. To pretend otherwise is disingenuous. There are huge implications about the choices we make on energy, climate, and certainly on matters of policy that will bear on the kind of planet we leave behind for future generations. To pretend that isn't part of the conversation is, I think, misguided. I think that the Pope's Encyclical puts that front and center. Where many of us, even those of us who are scientists, where it would behoove me to try to reserve this issue as one purely of science and to be arbitrated purely by science, it would serve my interest. But no.

Science alone cannot address this issue. Fundamentally it is about ethics and morality. And the Pope has very effectively focused on this and we'll see what kind of persistence he has. But he has refocused the argument where it arguably should have been all along.

PB: He is now a premiere science communicator.

MM: And by the way a scientist. How often can you say that?

PB: There's been a lot of talk for the last few years about science communication and the science of science communication. There is talk about the consensus messages, the "[97% message](#)." That consensus bell is being rung a lot.

MM: And there's a fierce push back against it because of its effectiveness in my view.

PB: And people are disaggregating the effects of [religion](#), [politics](#), [identity and science literacy](#), and whether someone is a [conspiratorial thinker](#). It gets dizzying. But you're a science communicator.

MM: De facto.

PB: At the end of the day you just have to communicate. I wonder what you think of the science communication field and how you proceed.

MM: I'm a practitioner. I haven't studied the theory of the field. And experts could rightly criticize me and criticized scientists more generally—rightly at some level.

PB: "[Don't be such a scientist!](#)" as Randy Olson would say.

MM: There you go. Olsen is a good friend of mine. We differ on things but I greatly respect his views and what he has to offer the community. It's tough love as far as I'm concerned. And we need that. As soon as we leave the realm of being scientist as scientist and become communicators by speaking to the media or giving public lectures and speaking engagements we leave that realm of our true expertise. We are venturing off into these other frontiers and there's a whole science of that. There is something to be learned there. We may feel like we have a lot of the answers or at least more answers than those outside our field when it comes to the science. But we have a lot to learn from people who study communication.

There are findings and theories in the art and science of communication as there are the theories that we work with in science. We should respect that and try to recognize communication experts as partners with whom we should work to improve our own effectiveness.

PB: What do you hope to see and what do you expect to see in the next five years in both education and the public discussion around climate change?

MM: Well, I hope that the discussion will increasingly toward answering what we can do to get out of it we have put ourselves in.

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PB: Do teachers have a role to play in that?

MM: Absolutely. This is an amazing time.

It might be the last opportunity we have. That's just based on the scientist in me taking a sober look at the numbers. The math. The arithmetic. What would it take to avoid warming the planet beyond levels that are clearly dangerous to humanity? There is somewhat of a consensus with differences of opinion and shades of gray but ultimately it's reasonable to think that 2°C or 3.5°F is putting us in the danger zone. When you look across the board at human health, biodiversity, national security, water, and food it's dangerous.

You might say there's subjectivity there. But there's no subjectivity about the math. What does it take to avoid doing that? There are hard numbers there and we have a great deal of confidence that we have to bring our global carbon emissions to a peak now and start ramping them down dramatically.

PB: And it sounds like we are having a heated agreement that a democracy needs well-supported science that goes through schools and the whole way up.

MM: Yes.

PB: So a reader of this blog are going to wonder what you think they should do.

MM: Well. If you care about science and love it want to preserve its role in public discourse, you have to recognize that there is a war going on right now. And we are under assault by the forces of ignorance, special interests that want to discredit science when it turns out to be inconvenient to their agenda.

PB: So should they, in their own lives as teachers be like you, [James Hansen](#), [Ben Santer](#), or [Katherine Hayhoe](#)?

MM: We all have to be comfortable with the role we play. It would be myopic to think there's a one-size-fits-all approach. If you live in a conservative place in a red county in a red state then the approach you take to inform the discussion may be different than the role you might play if you were Jim Hansen protesting mountaintop removal or the tar sands or Keystone XL pipeline.

I had the privilege of knowing Steve Schneider before his premature passing. Early on he provided some very wise words on this issue. I'm paraphrasing but we all have different comfort levels and different roles to play. I think someone taking a very conservative approach in a deep red state like Katherine Hayhoe who is an evangelical Christian can speak to audiences in a way that I never could, wouldn't want to, and wouldn't try to.

PB: It would seem disingenuous maybe.

MM: Exactly. My colleague [Dave Titley](#) here at Penn State. He was the former oceanographer of the U.S. Navy and a rear admiral. There are certain audiences who he speaks to that I wouldn't try to. So it's a matter of understanding our audience and the niche we can occupy and the role we can play.

PB: The thing that I see about Hansen, Hayhoe, and you is that you are all public. And I'm wondering about this for teachers. What I see is a certain amount of courage.

MM: Yeah. That's what this is about. We have to show some courage here. There is a concerted effort to stop us. Not just about climate change but broader efforts against environmental sustainability. We have to recognize that there's a really concerted effort from the other side and without an equal and opposite push in the other direction it's lost. It's laws of physics.

PB: Social physics in this case.

MM: Yes but applicable. The path of least resistance. The squeaky wheel. Whatever you want to call it. Unfortunately there's a lot of power and a lot of money on the other side. But there are a lot more people on our side. Our interests are the interests of human civilization. Not the narrow and short-term vested interests of those

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who profit from this. The numbers and moral authority are on our side. They have one thing: money. We have everything else. That matters. It means something.

Everybody from schoolteachers to church leaders and ordinary citizens expressing their views at town halls or in letters to the editor, there are so many different ways to share your views. There are unique ways for us for each of us to do this.

In the end, my belief is that self-preservation will prevail. I often quote Edmund Burke. “The only thing necessary for the *triumph of evil* is for good men to do nothing.” Good men and women. Everybody can play some role.

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