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Fields Medalist and French Politician Cédric Villani Visits Congress

Karen Saxe

On December 2, 2021, Fields Medalist and member of the French Parliament Cédric Villani was the presenter at the most recent AMS/MSRI congressional briefing; he spoke on "Mitigating climate change: science and policy."

This briefing was another in our (usually) biannual series, jointly hosted by the AMS and the Mathematical Sciences Research Institute (MSRI).[1] AMS Director of Government Relations Karen Saxe and MSRI Director David Eisenbud organize and host these. This one was special for a few reasons. First, it was our first in-person briefing in two years. Jill Pipher of Brown University and, at the time AMS President, spoke at the previous one, in December 2019. Second, it was the first time we have had a sitting politician as presenter.

From left to right: Former Congressman Bart Gordon, AMS Executive Director Catherine Roberts, Cédric Villani, AMS Director of Government Relations Karen Saxe, MSRI Director David Eisenbud.

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[1] http://www.ams.org/government/dc-outreach

The only PhD mathematician in Congress Jerry McNerney (CA, 9) and the only PhD mathematician in French Parliament Cédric Villani deep in conversation.

To host an event in a congressional building, you must work with a member's office to reserve a room. This year, Senate Majority Leader Schumer's office helped even though it was more complicated than in pre-COVID (and pre-January 6) times, as each attendee had to pre-register and, on the day, check in with Capitol Police and be escorted into and out of the building. The escort actually was quite useful—for those of you who have been in the US Capitol building know, it is quite a maze and finding a given room can be a challenge! Schumer's staff were extremely gracious and helpful and we are very grateful for their interest and support.

Attendees included a member of Congress, congressional staff, representatives from the National Science Foundation, mathematicians from local colleges and universities, and Department of Education staff. It was so great to be in-person again, and the general feeling in the room was one of high energy and excitement.

Once everyone had their lunches (which, due to COVID restrictions, were boxed) everyone sat down and the introductions began. I welcomed everyone, AMS Executive Director Catherine Roberts said a bit about the AMS, and MSRI Director David Eisenbud said a bit about MSRI and also outlined the overarching goals of our briefing series. The NSF provides the majority of funding for the basic research necessary to unlock the enormous potential applications of the mathematical sciences. Our briefings bring mathematics and its applications directly to Capitol Hill decision-makers and offer stories of how federal investment in basic research in math and science pays off for American taxpayers and helps the nation remain a world leader in innovation.

Eisenbud then introduced Congressman Jerry McNerney (CA, 9) who talked about his own trajectory from a PhD mathematician to an elected member of Congress, and also about his particular scientific and now legislative work in energy sources and climate change.

Then, Villani began. He told us about his electoral history—he was first elected in 2017—and about what he now does in his position in the French Parliament. He described his work on climate, which connects naturally to his mathematical research on analysis applied to the statistical physics of gas and plasmas. He more briefly pointed to his report on Artificial Intelligence, which was the basis for the French Strategy of AI.

I found especially interesting his description of the Office parliamentaire d'évaluation des choix scientifiques et technologiques (OPECST).[2] This office was set up by law in 1983, "to inform Parliament of the consequences of the choice of scientific and technological options, in particular, so as to enable it to make enlightened decisions." To do this, it "collects information, launches study programmes, and carries out assessments." Villani is current chair of OPECST. This office is in some ways analogous to our own Office of Technology Assessment (OTA)—an office of the US Congress that operated from 1974 to 1995. OTA provided Congress with expertise on emerging science and technology issues. It was viewed by some Republicans as unnecessary, too expensive, and even biased against their own party's agenda. As Speaker of the House, Newt Gingrich led Congress to abolish this office. Over the years, there have been efforts to reinstate it, including by Rhode Island's Senator Sheldon Whitehouse.[3]

Villani then went on to discuss policies that France and Europe are putting in place to address the need to act on climate change. He described goals to address climate change and barriers to meeting these goals. He emphasized that—paired with the need to improve science and

Patti Curtis from the US Department of Education asks a question.

[2] `http://www.senat.fr/opecst/eng/index.html`

[3] *AMS headquarters are located in Providence, and we are thus a constituent of Senator Whitehouse. An op ed of his about OTA is found here:* `https://www.nbcnews.com/think/opinion/trump-s-coronavirus-response-proves-congress-once-again-needs-its-ncna1205361`. *Additionally, see this piece written by 2019–20 AMS Congressional Fellow Lucia Simonelli:* `https://blogs.ams.org/capitalcurrents/2020/09/01/our-first-branch-of-government-needs-science-too/`.

technology—we need to address people's psychology and take actions that result in changing our habits. He argued, quite compellingly, that changes in our consumption habits are absolutely essential if we are going to slow down climate change and adapt to an already much-changed planet. He described current and increasing future climate migration, as the planet warms and local patterns of weather drastically alter.

The audience was very engaged and the Q&A period was robust and interesting. I think we could have continued the conversation for several more hours but, alas, we all had to be escorted out of the Capitol.

Cédric Villani is currently a Professor at University of Lyon. The focus of his research is in analysis applied to the statistical physics of gas and plasmas, as well as in non-Euclidean differential geometry. He has received numerous awards including the Fields medal. Respected for his acclaimed books (some of which have been translated into as many as 15 languages), he received the Doob Prize of the American Mathematical Society, a prize awarded every three years to recognize a book of great novelty and clarity. He is a member of the French Academy of Sciences, as well as the Pontifical Academy of Sciences. In 2017, he was elected to be a member of French Parliament, where he champions subjects rooted in science, especially ecology. He presides over the Office parlementaire d'évaluation des choix scientifiques et technologiques, which is responsible for helping the French Parliament understand the consequences of scientific and technological choices in order to inform its decisions.

Karen Saxe

Credits

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