Turning the borderlands into an energy-water innovation zone

Throughout Ronald Adrian's career, "wall turbulence" referred to the environmental impact of atmospheric conditions – the turbulence that results when fluids flow past surfaces.

But Adrian, an aeronautics and mechanical engineering professor at Arizona State University, now has turned his attention to "wall turbulence" of a different sort. He is part of a consortium of engineers and scientists that envision an alternative to "the wall" along the U.S. – Mexico border.

Recently detailed in Scientific American, the researchers have outlined a corridor of industrial parks and infrastructure development that would not only address energy and water needs on both sides of the border, it would create construction, technology, transportation and agricultural jobs.

"We want to see the border turned into a corridor that is rich in energy and water, which will attract businesses, investment and jobs and greatly expand agriculture," said Adrian in an article that answers questions about the initiative."

"We envision creating long, oasis-like stretches of development in the arid regions of the border," Adrian explained. "We essentially want to make the desert bloom with agriculture, industrial plants, jobs and opportunities while contributing to its security. We want both the U.S. and Mexico to be partners in creating the border project and enjoying its enormous benefits."

The white paper, Future Energy, Water, Industry and Education Park: A Secure and Permanent US-Mexico Border Solution, details a partnership between government agencies, private business and academia. Purdue Mechanical Engineering Professor Luciano Castillo is the lead author.

To schedule an interview with Professor Adrian, contact:

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About ASU Regent's Professor Ronald Adrian, Ph.D.:
Adrian's research interests are the space-time structure of turbulent fluid motion and the development of experimental and mathematical techniques to explore this structure. He has made research contributions in the areas of Doppler velocimetry, particle image velocimetry and estimation methods for analysis of turbulent flows.

Affiliations:

- U.S. National Academy of Engineering
- American Physical Society Fellow
- American Institute of Aeronautics and Astronautics Fellow
- American Society of Mechanical Engineers Fellow

Awards:

- 2001 Nusselt-Reynolds Prize for experimental fluid mechanics research
- 2002 AIAA Aerospace Measurement Technology Award for role in developing the particle image velocimeter
- 2005 Fluid Dynamics Prize from the American Physical Society
- 2007 Fluid Dynamics Award, American Institute of Aeronautics and Astronautics
- 2010 Fluids Engineering Award, American Society of Mechanical Engineers
- 2010 Leonardo Da Vinci Award, International Symposium for Flow Visualization
- 2016 Outstanding Achievement Award, University of Minnesota
- 2017 Honorary doctor of Engineering, University of Illinois, Urbana-Champaign

Education

- Ph.D. Physics, University of Cambridge, U.K. 1972
- M.S. Mechanical Engineering, University of Minnesota 1969
- B.M.E. Mechanical Engineering, University of Minnesota 1967