

**S. Julio Friedmann**  
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Julio received his B.S and M.S. degrees from M.I.T., followed by a Ph.D. at the Univ. So. California. After graduation, he worked for five years as a senior research scientist in Houston, first at Exxon and later ExxonMobil. He next worked as a research scientist at the Univ. of Maryland, collaborating with the Joint Global Change Research Institute (JGCRI) at the Univ. of Maryland, and the Colorado Energy Research Institute at Colorado School of Mines. In his current appointment as Carbon Management Program Leader for Lawrence Livermore National Laboratory, he leads initiatives and research into carbon capture, carbon storage, and fossil fuel recovery and utilization. In this role, he has submitted Congressional testimony for the US Senate and California and Wisconsin State Assemblies and testified before the House Energy and Commerce Committee. Published in Foreign Affairs and the New York Times, he has worked with the EPA, USGS, many private companies, many NGOs, and Dept. of Energy. He is a primary co-author on the MIT “Future of Coal Energy” Report, the National Petroleum Council report “Facing Hard Truths”, and the World Resources Institute “CCS Guidelines” report. His research interests include carbon sequestration, underground coal gasification, hydrocarbon systems, deep-water depositional systems, basin & range tectonics and sedimentation, sequence stratigraphy, and landslide physics. A native of Rhode Island, he has worked in CA, WA, UT, WY, CO, Spain, Ireland, the North Sea, Nigeria, Angola, Venezuela, Azerbaijan, and Australia

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**Carbon Management Program**

The Carbon Management Program, part of the Energy and Environmental Security Program at LLNL, is aimed at reducing the carbon footprint from fossil energy production and conversion. The program’s goals are to produce science, technology, and information to help reduce greenhouse gas emissions at competitive costs. The program comprises three main efforts that use the Lab’s unique capabilities and expertise.

- **Carbon capture and separation:** development of novel and low-cost methods to concentrate CO<sub>2</sub> from industrial flue streams.
- **Carbon sequestration:** application and development of science and technology in the deployment of carbon storage at scale. This includes advanced simulation and supporting science, monitoring technology and integration, and risk assessment and management.
- **Improved hydrocarbon production:** Production of conventional and unconventional hydrocarbon resources, including shale gas, oil sands, oil shales, and underground coal gasification..

The Lab and the program work today with industry, NGO’s and other research institutions to provide the highest possible effort to resolve pressing, difficult science and engineering problems.