



UAA College of Engineering
UNIVERSITY of ALASKA ANCHORAGE



UAA Professional Development Seminar Series

Detection of Internal Corrosion in Pipelines: Challenges and Opportunities

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According to a study conducted by the National Association of Corrosion Engineers (NACE) in 2002, the total estimated annual cost of corrosion in the United States has reached approximately \$276 billion. A large portion of overall corrosion costs is attributed to the energy sector, more specifically, the oil and gas industry. While federal and state agencies regulate pollution control and corrosion control measures associated with oil and gas production and transportation activities, spill incidents due to loss of integrity still occur. According to the data compiled for the Alaska Department of Environmental Conservation, internal corrosion is listed as the primary cause of 50% of the largest spills (greater than 10,000 gallons). Of particular concern are the so called “flow lines” and “facility piping,” which are typically comprised of smaller diameter pipes (up to 12”) that connect production wells with processing facilities. Such pipes are usually laid above ground, and are not always equipped with launching and retrieval stations for Pipeline Inspection Gages (PIGs), which perform assessment of deterioration due to corrosion on the internal surface of the pipe. It is desirable to develop a solution to allow performance of remote assessment of internal metal loss on demand, without the need to send a crew into the field. Development of novel sensing solutions suitable for oil and gas industry will be discussed.

Oleg Shiryayev joined UAA’s College of Engineering during the summer of 2019. Previously, he served as Mechanical Engineering faculty at the Petroleum Institute and the Khalifa University of Science and Technology, in Abu Dhabi, United Arab Emirates. He earned his doctoral degree in Engineering from Wright State University in Dayton, Ohio. He works on development of sensors for assessment of corrosion damage in pipelines and processing facilities. His other research interests include vibrations, structural health monitoring, and rotordynamics.

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