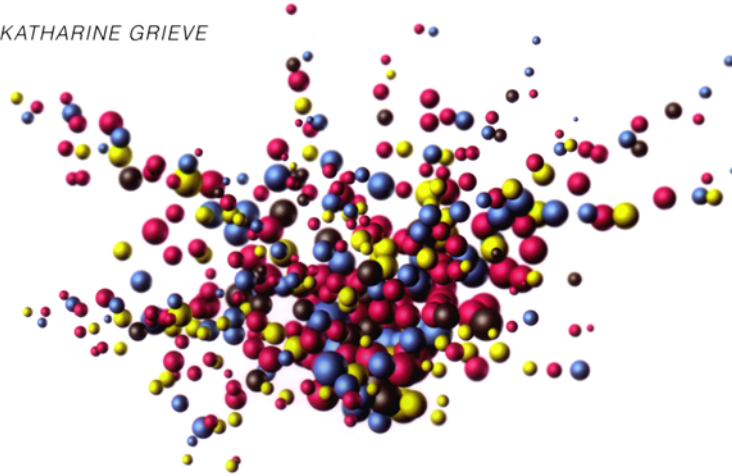


CANCER SOLUTION MAGNIFIES OIL RECOVERY

BY KATHARINE GRIEVE



Petroleum engineering and the biomedical field are not generally highly correlated, but both areas have discovered the same potential solution that could solve one of their most significant concerns. Early research has demonstrated that paramagnetic nanoparticles have the power to create a force shield for healthy cells in humans and oil in transportation lines.

Nanotechnology is not new by any means; its application is used in a variety of consumer products including golf clubs and clothing fabrics, and it is quickly finding a home in science fields. The Center for Petroleum and Geosystems Engineering Professors Steve Bryant and Chun Huh have been working for several years with nanoparticles, which are 1/100th the diameter of a human hair.

The light bulb went off for Dr. Huh while reading a medical research paper on the subject. The paper suggested nanoparticles can attach to “bad” cells in cancer patients, burn them off and leave the “good” cells intact – a much less intense process than the current options of chemotherapy and radiation. He thought this application, particularly the idea of targeted heating, could transfer to his work in petroleum engineering.

“Magnetic nanoparticles deliver intense localized heating, which can help with subsea flow assurance as it prevents the formation of hydrates,” said Dr. Huh. “We have created a ‘nanopaint’ that is applied to strategic areas inside of the pipe that absorbs the remotely transmitted magnetic wave, similar to a microwave, raising the temperature locally. This process could improve the transport of oil, especially heavy oil, through pipelines.”

Dr. Bryant, who is leading the Nanoparticle Subsurface Engineering Consortium, said, “No other university is working on nanoparticles as much as UT Austin. We see the need as oil production is increasing for the first time in 30 years. This idea can help control costs for oil & gas companies and at the pump as the drilling and construction of wells has significant costs.”

Further research is required to test its true effect on enhanced oil recovery, but the initial findings showcase paramagnetic nanoparticles possess strong potential, which can positively influence our health and economy.

For more information on the project, contact Dr. Bryant – steven_bryant@mail.utexas.edu