

For Immediate Release



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AUB Research: Better mixing with bubbles

Who has not chased a bubble rising in the air, or blown into a straw to create a mound of bubble foam in milk or water? Probably few realized that bubbles both move and cause movement, and that they can be used to mix things together by increasing the area of contact?

Professor Fuad Azizi, a chemical engineer in the Maroun Semaan Faculty of Engineering and Architecture at the American University of Beirut (AUB), along with graduate student Khaled Abou Hweij, are putting bubbles to work. In a recent article in the Journal of the American Institute of Chemical Engineers (2017 Vol. 63, No. 4) they describe varying the size of openings in a screen that is used to generate bubbles from gases exiting a submerged tube, allowing the gases to mix more quickly and completely with the surrounding liquids. Their research led to the design of a screen-type static mixer in which the substances being mixed spend the longest time in a bubble phase. These novel mixers allow equipment in chemical processing facilities to be as much as 1000 times smaller.

An important application of static mixers is for removing contaminants or pollutants from gas streams, such as removing Sulphur from natural gas, which leaves us with cleaner burning fuels, or to capture or dissolve CO₂ in water, which would make desalinated sea water taste better. Prof. Azizi said that what he finds most exciting is that “we are breaking records. We are achieving high process rates with low energy requirements and this kind of process intensification is good for the environment.”

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Note to Editors

About AUB

Founded in 1866, the American University of Beirut bases its educational philosophy, standards, and practices on the American liberal arts model of higher education. A teaching-centered research university, AUB has more than 700 full-time faculty members and a student body of about 8,500 students. AUB currently offers more than 130 programs leading to bachelor's, master's, MD, and PhD degrees. It provides medical education and training to students from throughout the region at its Medical Center that includes a full-service 420-bed hospital.

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