



## **CiDRA to Speak at ISA EXPO 2004**

Wallingford, CT – September 22, 2004: CiDRA Corporation (“CiDRA”) today announced that Dr. Dan Gysling, Chief Technology Officer at CiDRA will be speaking at the ISA EXPO 2004 to be held in Houston, October 5-7, 2004. Dr. Gysling’s presentation, *Accurate Density Measurement of Aerated Liquids using Speed of Sound Augmented Coriolis Meters* will be presented on Wednesday, October 6<sup>th</sup> at 3:45 p.m. as part of the Emerging Technologies Conference.

In his presentation, Dr. Gysling will describe a methodology, which enables accurate density measurement of the liquid phase of aerated liquids. In many applications, density measurements are employed to determine compositional information of process liquids. For most density measuring approaches, the presence of a small, but unknown, quantity of entrained gas phase within the process mixture will introduce errors in the interpreted density of the liquid phase.

This presentation describes a new approach to process fluid density measurement that couples a sonar-based speed-of-sound measurement with Coriolis meters to determine the density of aerated mixtures. It is well known that accuracy of Coriolis meters, both mass flow and density measurements, degrade with aeration of the process fluid. Augmenting the output of the Coriolis meter with a speed of sound measurement provides a new approach to improved density measurement for aerated fluids in two ways. Firstly, sound speed of low frequency, one-dimensional pressure waves in aerated mixtures provides first principles insight into the gas volume fraction of the mixture. Secondly, the sound speed of the process fluid is used to compensate for the effect of the increased compressibility of aerated mixture on the output of the Coriolis density measurement.

Experimental data is presented which demonstrates augmenting the density measurement from the Coriolis meter with a sound speed measurement. This enables the combination to determine the density of the liquid phase of the aerated mixture with the equivalent accuracy of that for non-aerated mixtures.

For additional information on CiDRA's products and services, please visit [www.cidra.com](http://www.cidra.com).

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