

Alfred University, Cerion Enterprises explore additives for greater fuel efficiency

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Understanding how a ceria additive increases fuel efficiency is the goal of a collaborative research project between an Alfred University professor and Cerion Enterprises, LLC, a Rochester-based company. Cerion continues to support the work of Alastair Cormack, the Van Derck Frechette Professor of Ceramic Science in the Inamori School of Engineering at Alfred University. Cormack's research group is using computational techniques to simulate the structure and energetics of ceria-based nanoparticles. Ceria is cerium oxide, CeO_2 , a rare-earth compound. Cerion's GO2 catalyst is an eco-friendly diesel fuel additive that decreases fuel consumption by a minimum of 8% while also reducing harmful emissions and particulate matter. A primary goal of Cormack's research is to provide a deeper understanding of the atomic scale mechanisms responsible for the extraordinary performance of these nanoparticles. A secondary goal is to develop a computer-based approach for designing other nanoparticle catalysts. Ideally, the simulation would reduce the number of laboratory experiments needed for developing new products. "The insight and guidance that Cormack's calculations provide is an integral part of our research program for the production of higher reactivity catalytic nano materials that approach the limits of solid state chemistry," said Kenneth Reed, Cerion's chief technology officer. "This research is a perfect example of how computational tools can provide significant insight into materials that is unattainable by more traditional experimental methods," noted Matthew Hall, director of the Center for Advanced Ceramic Technology (CACT) at Alfred University. "We are thrilled to be working with Cerion Enterprises and look forward to helping advance the science of combustion catalysts." The Center for Advanced Ceramic Technology at Alfred University is also partially supporting Cormack's project with Cerion Enterprises. For more about Inamori School of Engineering at Alfred University: <http://engineering.alfred...> more about Alastair Cormack: <http://engineering.alfred...> more about the Center for Advanced Ceramic Technology: <http://cact.alfred.edu> For more about Cerion Enterprises: <http://www.cerionenterpri...>