

An SEA was Awarded to the following Magnetic Processing Team Members: Gail M. Ludtka, Gerard M. Ludtka, Orlando Rios, Bart Murphy, Amit Naskar, and Soydan Ozcan (Physical Sciences: MS&T); John Wilgen and Roger Kisner (Energy & Environmental Sciences).

These **Magnetic Processing Team members recently won a** Significant Event Award acknowledging their part in contributing to multiple significant, *unprecedented* successful materials performance impacts that promise to usher in the Next Generation Structural and Functional Materials for a myriad of applications. E.g., this team has demonstrated that T-MP/ HMFP impacts all materials in significant and Game-changing ways: 1.) In carbonaceous materials, the tensile strength and the modulus were simultaneously increased by 44% and 15%, respectively; 2.) In a cast iron, hardness was increased by 51%; 3.) for a proprietary/commercial steel, simultaneous increases were achieved in Strength (12%) and Charpy Impact energy (32%), while also, significantly mitigating chemical banding/ inhomogeneity issues typical in most alloys; 4.) in a Mg-based alloy, nano-particles were well-dispersed (not agglomerated), and nano-crystalline size grains were achieved. These materials improvements could dramatically impact and enable significant improvements for a myriad of materials applications, including, extending the life and performance of carbon cathode-type batteries; obtaining wrought materials performance in cast transportation and automotive components, and accelerating major-break-throughs for higher performance, more economical alloys, including those using nano-particles.