

511a The Development of Energetic Nanocomposites for the Warfighter

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RDECOM-ARDEC has formed a partnership with the University of Missouri – Columbia and Texas Tech University in the pursuit of producing nanocomposite energetic materials. Dr. Gangopadhyay has developed fuel-oxidizer composites consisting of iron oxide, copper oxide, and aluminum oxide and is optimizing them to meet current and future Army needs and requirements.

These materials have many potential applications as their properties, such as output and sensitivity, can be tailored through the use of surfactants to control the sol gel and crystallization processes used to make them. RDECOM-ARDEC is evaluating and integrating these materials into potential applications that include: components of enhanced blast formulations, primers, micro-initiators, and as a means of power generation. ARDEC is initiating this transition through process scale-up, sensitivity testing, performance testing, and other application-specific means of material characterization.