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Dr. Vargas is a senior research engineer in the Materials Science and Failure Analysis Group at Southwest Research Institute (SwRI). Dr. Vargas supports and conducts failure analysis and applied research projects involving, metals, advanced materials, and coatings in diverse applications using a wide range of materials and chemical characterization tools.

Dr. Vargas previously worked at the NAVAIR Fleet Readiness Center Southeast supporting the repair and overhaul of NAVY based aircraft and weapon systems. Dr. Vargas conducted various metallurgical failure analyses on structural airframe and engine components, and provided manufacturing instructions for flight critical components.

During her graduate work at The University of Texas at El Paso (UTEP), Dr. Vargas focused on the fabrication and characterization of nanostructured thin films for optoelectronic and photovoltaic device applications. Dr. Vargas worked transition metal oxide thin films fabricated by physical vapor deposition techniques- including radio frequency (rf) and direct current (dc) magnetron sputtering. The deposition parameters were varied to ultimately tailor the visible absorption of the films in order to exhibit a high transparency and critical conductivity for application as transparent conducting oxides. Dr. Vargas published various articles on the structure-function properties developed by variable deposition parameters on tungsten and titanium oxide thin films.



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