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Study of Titanium Hydride Destabilized Lithium Aluminum Hydride as a Promising Hydrogen Storage System TROY SMITH, TABBETHA DOBBINS, Rowan University, Dept. of Physics & Astronomy — Destabilized hydrides are a class of hydrogen storage systems whereby the theoretical hydrogen desorption temperature is reduced owing to the formation of a stable product phase which is typically comprised of cations from the destabilizer and the hydride phase. This work examines the hydrogen desorption temperatures for a mixture of titanium hydride (TiH2) (as a destabilizer) and lithium aluminum hydride (LiAlH4). X-ray diffraction (XRD) and temperature programmed desorption (TPD) were used to confirm the onset of desorption at temperatures as low as 75 deg C. The thermodynamic phase diagram corresponding to the mixed system will be presented and a reaction mechanism is suggested.

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