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Application of Henry's Law for Binding Energies of Adsorbed Hydrogen¹ ANDREW GILLESPIE, ELMAR DOHNKE, DAVID STALLA, MARK SWEANY, PETER PFEIFER, University of Missouri — The method of isosteres is the simplest method used to calculate the differential enthalpy of adsorption. However, it is incredibly sensitive to the choice of model and respective fitting parameters. For a set of isotherms measured on a specific sample, most models converge upon a similar value at high coverage, but are inconsistent in the low pressure regime. In this talk, we investigate the application of various models for localized and mobile adsorption at low pressures in order to obtain binding energy of hydrogen to the adsorbent surface. Henry's Law analysis of the Langmuir Model of adsorption yield binding energies in excellent agreement with those obtained from the Clausius Clapeyron relation.

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Andrew Gillespie
University of Missouri

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