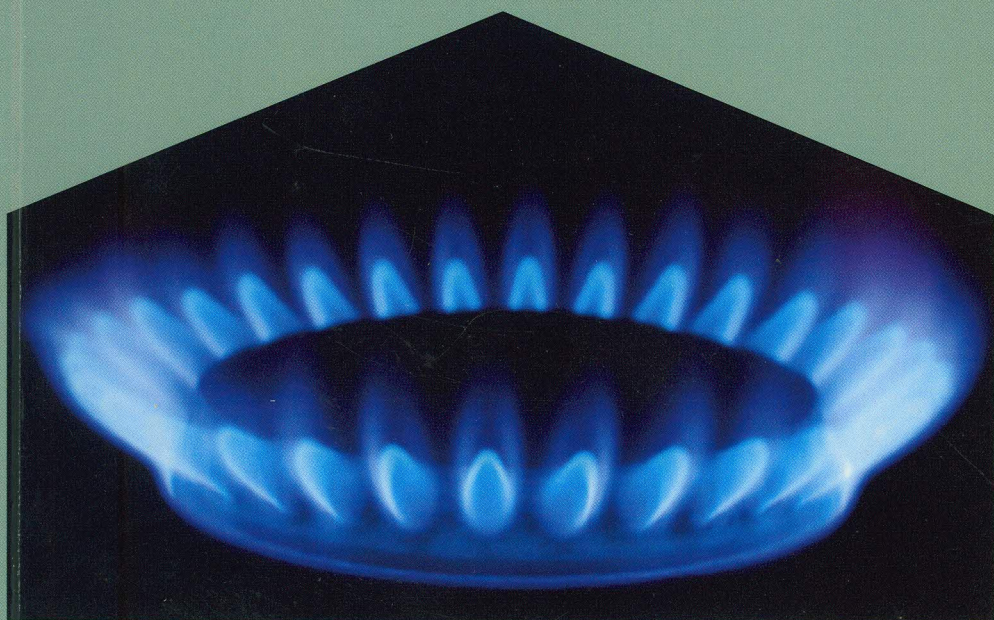


# **ADSORBED NATURAL GAS STORAGE BY EXPERIMENTAL AND SIMULATION APPROACHES**



**MA'AN FAHMI RASHID AL-KHATIB**



**IIUM  
Press**

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# ADSORBED NATURAL GAS STORAGE BY EXPERIMENTAL AND SIMULATION APPROACHES

This book addresses the use of adsorbed natural gas (ANG) storage in vehicles. Natural gas (NG) has been used in vehicles as alternative fuel to gasoline and diesel due to its clean burning characteristics. The challenge with use of NG in vehicles is in its storage. The current storage method is by compressing the gas in cylinders up to 20 Mpa pressure. The use of adsorption storage system could overcome the disadvantages of high storage pressure in compressed natural gas (CNG) using adsorbents with high surface area to volume ratio and high chemical and physical stabilities, such as carbon nanotubes (CNTs). Experimental and simulation approaches are used to study the storage and discharge behaviors of NG (as methane gas). The experimental data obtained from the storage and delivery tests are compared to those obtained from process simulation using a dynamic model. The simulation model is run using the measured equilibrium data as input parameters. A good agreement is observed between experimental and simulated results. Pressure and temperature histories are, reasonably, well predicted.

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