

# **A PARAMETRIC STUDY OF A HEAT RECOVERY ADSORPTION COOLING MACHINE**

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**ABSTRACT.** In this paper, a detailed thermodynamic and parametric analysis of simple and regenerative cycle of an adsorptive machine using the activated carbon AC-35/methanol as adsorbent/adsorbate pair is given, where the Dubinin-Astakhov equation is used to describe the isotherm of adsorption. Results are presented in terms of performances. These results demonstrated that the performance coefficient of double bed adsorption refrigeration cycle increases with respect to the single bed configuration.

Several main factors affecting the performance of cycle, the heat recovery ratio, the regenerative heat and the temperature at the end of heat recovery are discussed according to the results of computer simulations.

**KEYWORDS:** *Heat regenerative, Thermal performance coefficient, Thermodynamic analysis.*