

DEPARTMENT OF

ENERGY AND MINERAL ENGINEERING

COLLEGE OF EARTH AND MINERAL SCIENCES

EGEE/PNGE 590 Colloquium

**DEVELOPMENT AND TESTING OF AN EXPERT SYSTEM
FOR COALBED METHANE RESERVOIRS USING
ARTIFICIAL NEURAL NETWORKS**

**Presented by: Karthik Srinivasan, Masters Candidate
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Abstract:

Reservoir simulators serve as excellent tools to predict production performance of oil and gas reservoirs to a good level of accuracy. However, during initial stages of exploitation, most of the reservoir properties and production parameters are known only within certain ranges. In such cases, Expert Systems offer a screening tool to achieve the purpose of a simulator at a lower cost and reduced time. An expert system consists of a knowledge base and set of algorithms that are capable of inferring facts based on existing knowledge and incoming data. The level of accuracy of predictions from an expert system depends on the quality of data, rules that define the problem at hand and human expertise. Artificial neural networks are being used in a large number of reservoir engineering applications such as performance optimization, reservoir characterization, field development applications, well stimulation, formation evaluation and pressure transient analysis. The expert system described here is a tool which can be used to predict the performance of a coal bed methane reservoir just like any other numerical model. Also, an inverse algorithm, which has the capability of identifying the optimum production parameters for a certain desired production scenario from a potential coal bed reservoir, is studied.

Thursday, March 6, 2008

1:00 – 2:15 p.m.

157 Hosler Building

light refreshments will be served at 1:00 p.m.