Abstract Submitted
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Experimental investigation of the temperature effects on CO_2 permeability of fractured coal rock[1] YANG JU, State Key Laboratory of Coal Resources and Safe Mining, China University of Mining Technology, Beijing 100083, HUIJIE WANG, School of Mechanics and Civil Engineering, China University of Mining Technology, Beijing 100083, RANJITH PATHEGAMA GAMAGE, Department of Civil Engineering, Monash University, Melbourne, Victoria, 3800, Australia, HUAFEI SUN, School of Mechanics and Civil Engineering, China University of Mining Technology, Beijing 100083 — Accurate prediction of gas permeability is of great significance for coalbed methane production and CO_2 sequestration. The permeability of coal rock plays a key role in determining coalbed methane productivity in the application of simultaneous excavation of coal and gas in deep coal mines. The main objective of this study is to investigate the temperature effects on the permeability of fractured coal rock in deep coal seams. The CO_2 permeability of the fractured coal samples obtained from Ping Ding Shan coalfield, China, was measured using high pressure undrained triaxial apparatus. To probe the temperature effects, four levels of temperatures (25-75°) were tested with the injection pressures ranging from 7 to 11MPa and a confining pressure of 15MPa. It is shown that the CO_2 permeability of the fractured coal rock rises apparently with an increasing temperature. The physical mechanism that governs the CO2 permeability of coal rock is discussed in this study.

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