1083-15-9   **Lateef Adewale Kareem*** (`adewale@kfupm.edu.sa`), Petroleum Engineering Department, King Fahd University of Petroleum and, Minerals, Saudi Arabia. *Characteristic Equation and Determinant of a Null Matrix.*

A new method of determining the characteristic equation of a matrix was developed. This new method presents the coefficients of the characteristic equation as the sums of determinants of smaller (co-diagonal) sub matrices within the matrix. It identifies a connection between the coefficients (sum of determinant) and sum of cofactors, and by extension of this connection provides a proof that the determinant of a null matrix is 1, the determinant of an identity matrix. Keywords: Characteristic equations, matrix and determinant, co-diagonal sub matrix, sum of determinant and cofactors, null matrix, identity matrix. (Received June 10, 2012)