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Adnan H Sabuwala* (asabuwala@csufresno.edu), 5245 N Backer Ave, M/S PB 108, Fresno, CA 93722. *Particular Solution to the Euler-Cauchy Equation: A Novel Approach*. Preliminary report.

The Euler-Cauchy differential equation is one of the first, and simplest, forms of a higher order non-constant coefficient ordinary differential equation that is encountered in an undergraduate differential equations course. For a non-homogeneous Euler-Cauchy equation, the particular solution is typically determined by either using the method of variation of parameters or transforming the equation to a constant-coefficient equation and applying the method of undetermined coefficients. In this talk, we demonstrate the surprising form of the particular solution for the most general n^{th} order Euler-Cauchy equation when the non-homogeneity is a polynomial. In addition, a formula that can be used to compute the unknown coefficients in the form of the particular solution will be presented. (Received September 03, 2009)