1014-E1-1756   **Thomas Koshy*** (`tkoshy@frc.mass.edu`), Framingham, MA 01748. *Tribinomials, Catalan Numbers, and Mersenne Numbers.*

Tribinomials are binomial coefficients for triangular numbers. This talk presents the family of tribinomials and their several intriguing properties. They can be defined explicitly as well as recursively. Hermite's divisibility property, and the Hoggatt-Hansell identity and Gould's identity for binomial coefficients can be extended to tribinomials. Pascal's triangle can be used to extract the various tribinomials, from which it follows that each tribinomial coefficient is in fact an integer. Tribinomials can be used to construct a Pascal-like triangle; its row sums turn out to be Catalan numbers. There exists an intriguing relationship between central tribinomial coefficients and Catalan numbers. Using the parity of the latter, it follows that the parity of the central tribinomial coefficients is related to Mersenne numbers. Finally, as in the case of Pascal's triangle, the tribinomial array can be extended upward.