1057-13-189 **J. Herzog**, **T. Hibi**, **F. Hreinsdottir** and **T. Kahle*** (kahle@mis.mpg.de), Inselstr. 22, D-04103 Leipzig, Germany, and **J. Rauh**. *Binomial Edge Ideals and Conditional Independence.*

We introduce binomial edge ideals attached to a simple graph G and discuss some of their algebraic properties. A reduced squarefree Gröbner basis shows that binomial edge ideals are radical ideals. Their minimal primes can be characterized combinatorially. Binomial Edge ideals arise naturally in the study of certain conditional independence models. Our results apply for the class of conditional independence ideals where a fixed binary variable is independent of a collection of other variables, given the remaining ones. In this case the prime decomposition has a natural statistical interpretation. (Received January 22, 2010)