1057-05-208   **Loni Delaplane*** (`ldelapla@bsc.edu`) and **Haidong Wu**. *Bounding Coefficients of Characteristic Polynomials of Binary Matroids.*

The *characteristic polynomial* of a matroid M with ground set E is defined as

$$\chi(M, x) = \sum_{X \subseteq E} (-1)^{|X|} x^{r(M) - r(X)}.$$

For a graphic matroid, $M(G)$, the characteristic polynomial is related to $P_G(x)$, the chromatic polynomial of the graph G, by the equation

$$P_G(x) = x^{\omega(G)} \chi(M(G), x)$$

where $\omega(G)$ is the number of components of G. We give several upper and lower bounds on the coefficients of the characteristic polynomial of a binary matroid. This generalizes the corresponding bounds for graphic matroids of Li and Tian, as well as Björner's bound for binary matroids. It also gives new bounds on the coefficients of the flow polynomial of a graph. (Received January 22, 2010)