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**Sooyeon Lee\*** (slee27@olemiss.edu) and **Haidong Wu**. *The beta invariant and chromatic uniqueness of wheels.*

Using the beta invariant and the characteristic polynomial of a matroid  $M$ , we prove that if  $M$  is a 3-connected matroid such that the chromatic polynomial of  $M$  is equal to the chromatic polynomial of a wheel, then  $M$  is isomorphic to the wheel. And we show a splitting formula of the beta invariant of a general parallel connection across a 3-point line and 3-sum of two matroids and how this result is related to the connectivity condition of the chromatic polynomial result. (Received February 12, 2018)