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)