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Hayan Nam*, 443 Carver, 411 Morrill Rd, Ames, IA 50011, and **Gilyoung Cheong** and **Myungjun Yu**. *Some convergence of random characteristic polynomials to random permutations and its applications.*

We show that the distribution of degree d irreducible factors of the characteristic polynomial of a random $n \times n$ matrix over \mathbb{F}_q converges to the distribution of length d cycles of a random permutation of n letters, as q goes to infinity, while d is fixed. This convergence will be used for the following three different applications: a matrix version of theorems of Jordan and Landau, a relationship between Cohen-Lenstra and Poisson distributions, and the distribution of the cokernel of a Haar $n \times n$ random \mathbb{Z}_p -matrix when p goes to infinity. (Received September 16, 2019)