

The Petersen coloring of 3-regular graph G is equivalent to the normal coloring by five colors. The normal coloring is a good coloring of edges such that every edge and its four neighbours have together three or five different colors. Jaeger conjectures that every bridgeless 3-regular graph has a Petersen coloring. If the conjecture were true, it would imply other interesting statements about 3-regular graphs. In this text we investigate normal coloring by more than five colors. Jaeger theorem about nowhere-zero \mathbb{Z}_2^3 -flow implies that every bridgeless graph has normal coloring by seven colors. Independently on the Jaeger theorem, we prove the existence of normal coloring by nine colors for graphs with a bridge, a cut of size two or with a triangle. The idea of our proof comes from Andersen's proof of existence of strong coloring by ten colors for 3-regular graphs. Finally, we sketch the idea of the proof for other classes of 3-regular graphs.